Evolving To Meet Tomorrow's Challenges

CLEAN HARBORS COLFAX, LLC
COLFAX, LOUISIANA

RCRA PERMIT APPLICATION
PART II

APPENDICES
U (cont) to Z

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AUG 14 2003
DEPT. OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES
PERMIT DIVISION

Prepared for:

Clean Harbors Colfax, LLC
3763 Highway 471
Colfax, Louisiana 71417

Agency Interest #32096
LAD 981055791

Volume 4 of 4

AUGUST 2003

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Appendix 1
ISCST2 Air Dispersion Modeling Output

ISCST2
Deposition Data
1987

BEST COPY

for the following Pages

2

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CO STARTING
CO TITLEONE R&D Fabricating & Manufacturing Subpart X Facility
CO TITLETWO Air Screening Assessment-Deposition (g/m2) -199
CO MODELOPT DFAULT DFPOS  RURAL
** AVERTIME   1  2  3  4  6  8 12 24 HOUR PERIOD
CO AVERTIME   1                          PERIOD
CO POLLUTID OTHER
** HALFLIFE or DECAYCOEF
CO TERRHGTS FLAT
CO ELEVUNIT METERS
** FLAGPOLE Flagpl
CO RUNORNOT RUN
** EVENTFIL Evfile_____.___ Evnt
** SAVEFILE Savfil_____.___ Binary Savfil_____
** INITFILE Initfil_____.___
** HOURYRAN Dhfcnt_____.___ Dhfcnt_____.___
CO EVENTLOC EVALUATION
** SRCF_IML
CO FINISHED

SO STARTING
** LOCATION Srcid___ Srctyp Xs_____.__ Ys_____.__ Zs_____.____
SO LOCATION #1      VOLUME     725.00     1072.0      .0000
** SRCPARAM Srcid___ QS_____ HS___.____ TS___.____ VS___.____ DS___.____
SO SRCPARAM #1      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #2      VOLUME     760.00     1072.0      .0000
SO SRCPARAM #2      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #3      VOLUME     740.00     1060.0      .0000
SO SRCPARAM #3      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #4      VOLUME     775.00     1060.0      .0000
SO SRCPARAM #4      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #5      VOLUME     755.00     1048.0      .0000
SO SRCPARAM #5      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #6      VOLUME     790.00     1048.0      .0000
SO SRCPARAM #6      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #7      VOLUME     770.00     1036.0      .0000
SO SRCPARAM #7      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #8      VOLUME     805.00     1036.0      .0000
SO SRCPARAM #8      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #9      VOLUME     785.00     1022.0      .0000
SO SRCPARAM #9      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #10     VOLUME     820.00     1022.0      .0000
SO SRCPARAM #10     1.00000000     6.0000     1.4000     2.8000
SO LOCATION #11     VOLUME     800.00     1005.0      .0000
SO SRCPARAM #11     1.00000000     6.0000     1.4000     2.8000
SO LOCATION #12     VOLUME     835.00     1005.0      .0000
SO SRCPARAM #12     1.00000000     6.0000     1.4000     2.8000
SO LOCATION #13     VOLUME     815.00     992.0       .0000
SO SRCPARAM #13     1.00000000     6.0000     1.4000     2.8000
SO LOCATION #14     VOLUME     850.00     992.00      .0000
SO SRCPARAM #14     1.00000000     6.0000     1.4000     2.8000
SO LOCATION #15     VOLUME     830.00     980.00      .0000
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SO SRCPARAM #15      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #16      VOLUME     865.00     980.00      .0000
SO SRCPARAM #16      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #17      VOLUME     845.00     968.00      .0000
SO SRCPARAM #17      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #18      VOLUME     880.00     968.00      .0000
SO SRCPARAM #18      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #19      VOLUME     860.00     954.00      .0000
SO SRCPARAM #19      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #20      VOLUME     895.00     954.00      .0000
SO SRCPARAM #20      1.00000000     6.0000     1.4000     2.8000
SO EMISFACT #1-#20          HROFDY      .0000      .0000      .0000      .0000
SO EMISFACT #1-#20          HROFDY      .0000     1.0000     1.0000     1.0000
SO EMISFACT #1-#20          HROFDY     1.0000     1.0000     1.0000     1.0000
SO EMISFACT #1-#20          HROFDY     1.0000     1.0000     1.0000     1.0000
SO EMISFACT #1-#20          HROFDY     1.0000     1.0000     1.0000     1.0000
SO EMISFACT #1-#20          HROFDY      .0000      .0000      .0000      .0000
SO SETVELOC #1-#20             .000744    .006690    .015060    .022500
SO SETVELOC #1-#20             .036450    .060250    .090000    .190400
SO SETVELOC #1-#20             .297500
SO MASSFRAX #1-#20             .230000    .170000    .050000    .050000
SO MASSFRAX #1-#20             .080000    .060000    .060000    .090000
SO MASSFRAX #1-#20             .210000
SO REFLCOEF #1-#20             .000000    .000000    .000000    .000000
SO REFLCOEF #1-#20             .000000    .000000    .000000    .000000
SO REFLCOEF #1-#20             .000000
SO SRCGROUP ALL
SO FINISHED

RE STARTING
** GRIDCART Netid___ STA
RE GRIDCART near     STA
** GRIDCART Netid___ XPNTS Gridx1_.__ Gridx2_.__ Gridx3_.__ Gridx4_.__
RE GRIDCART near     XPNTS 500        550        600        650
RE GRIDCART near     XPNTS 700        750        800        850
RE GRIDCART near     XPNTS 900        950        1000
RE GRIDCART near     YPNTS 600        650        700        750
RE GRIDCART near     YPNTS 800        850        900        950
RE GRIDCART near     YPNTS 1000       1050       1100       1150
RE GRIDCART near     END
RE DISCCART             -12      -12
RE DISCCART             -12      100
RE DISCCART             -12      200
RE DISCCART             -12      300
RE DISCCART             -12      400
RE DISCCART             -12      500
RE DISCCART             -12      600
RE DISCCART              12      700
RE DISCCART              12      812
RE DISCCART            -100      812
RE DISCCART             200      812
RE DISCCART            -300      812
RE DISCCART            -400      812
```

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RE DISCCART          -475    812
RE DISCCART          -440    900
RE DISCCART          -390    1000
RE DISCCART          -350    1100
RE DISCCART          -300    1200
RE DISCCART          -265    1300
RE DISCCART          -230    1400
RE DISCCART          -195    1500
RE DISCCART          -165    1578
RE DISCCART          -100    1578
RE DISCCART             0    1578
RE DISCCART           100    1578
RE DISCCART           200    1578
RE DISCCART           300    1578
RE DISCCART           400    1578
RE DISCCART           500    1578
RE DISCCART           600    1578
RE DISCCART           700    1578
RE DISCCART           800    1578
RE DISCCART           900    1578
RE DISCCART          1000    1578
RE DISCCART          1100    1578
RE DISCCART          1200    1578
RE DISCCART          1300    1578
RE DISCCART          1400    1578
RE DISCCART          1500    1578
RE DISCCART          1568    1578
RE DISCCART          1568    1500
RE DISCCART          1568    1400
RE DISCCART          1568    1300
RE DISCCART          1568    1200
RE DISCCART          1568    1100
RE DISCCART          1568    1000
RE DISCCART          1568    900
RE DISCCART          1568    800
RE DISCCART          1568    700
RE DISCCART          1568    600
RE DISCCART          1568    500
RE DISCCART          1568    400
RE DISCCART          1568    300
RE DISCCART          1568    200
RE DISCCART          1568    100
RE DISCCART          1568    -12
RE DISCCART          1400    -12
RE DISCCART          1200    -12
RE DISCCART          1000    -12
RE DISCCART           800    -12
RE DISCCART           600    -12
RE DISCCART           400    -12
RE DISCCART           200    -12
** DISCPOLR Srcid___ Xdisc1_.__ Ydisc1_.__ Zelev.1___ Zflag.1___
** BOUNDARY Srcid___ Range1.__ Range2.__ Range3.__ Range4.__ Range5.__ Range6.__
RE FINISHED
```

BEST COPY

for the following Pages

24

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ME STARTING
** INPUTFIL Metfil_____________________ Metfmt_____________ _____ ___ _____
ME INPUTFIL E:\LLAW\MET\ALEX87.BIN        UNFORM
** ANEMHGHT Zref_.____ Zrunit
ME ANEMHGHT    10.0000
** SURFDATA Srfno Ifyr Srname_____________________ Surfx__.__ Surfy__.__
ME SURFDATA 74754 1987
** UAIRDATA Uppno Iuyr Upname_____________________ Upprx__.__ Upprx__.__
ME UAIRDATA 03951 1987
** STARTEND Strtyr Strtmn Strtdy Strthr Endyr Endmn Endly Endhr
** DAYRANGE Arange_____________________________________________ _____________
** WDROTATE Rotan.g___
** WINDPROF St Prof1.____ Prof2.____ Prof3.____ Prof4.____ Prof5.____ Prof6.____
** DTHETADZ St Dtdz1.____ Dtdz2.____ Dtdz3.____ Dtdz4.____ Dtdz5.____ Dtdz6.____
** WINDCATS Wcat1.____ Wcat2.____ Wcat3.____ Wcat4.____ Wcat5.____
ME FINISHED

CU STARTING
** RECTABLE Aveper FIRST_ SECOND THIRD_ FOURTH FIFTH_ SIXTH_
** MAXTABLE Aveper  Maxnum
CU MAXTABLE ALLAVE       50
** DAYTABLE Avper1 Avper2 Avper3 Avper4
** MAXIFILE Aveper Grpid___ Thres.h___ Filnam_____________________
** POSTFILE Aveper Grpid___ Format Filnam_____________________
** PLOTFILE Aveper Grpid___ Hivalu Filnam_____________________ Unit
CU PLOTFILE PERIOD ALL       E:\LLAW\LLADEP87.GRF        30
** TOXXFILE Aveper Cutoff____ Filnam_____________________
CU FINISHED


 EFE-Line Max-32 Version 1.2

 Input File - e:\llaw\lldep87.dta
Output File - e:\llaw\lldep87.lst
   Met File - E:\LLAW\MET\ALEX87.BIN


*********************************
*** SETUP Finishes Successfully ***
*********************************
```

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** MODEL SETUP OPTIONS SUMMARY ***

**Model Is Setup For Calculation of Total DEPOSition Values

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Use Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.
8. "Upper Bound" Values for Supersquat Buildings.
9. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 1 Short Term Average(s) of: 1-HR
and Calculates PERIOD Averages

**This Run Includes: 20 Source(s); 1 Source Group(s); and 195 Receptor(s)

**The Model Assumes A Pollutant Type of: OTHER

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of PERIOD Averages by Receptor
Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE: The Following Flags May Appear Following DEPO Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 3600.0
Output Units = GRAMS/M**2

**Input Runstream File: e:\llaw\lldep87.dta ; **Output Print File: e:\llaw\lldep87.lst
**Detailed Error/Message File: E:\LLAW\LLERR87.TXT

*** MODELING OPTIONS USED: DFPOS RURAL FLAT DFAULT

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT SY (METERS)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
#1	9	0.10000E+01	725.0	1072.0	0.0	0.00	1.40	2.80	DEPTH
#2	9	0.10000E+01	760.0	1072.0	0.0	0.00	1.40	2.80	DEPTH
#3	9	0.10000E+01	740.0	1060.0	0.0	0.00	1.40	2.80	DEPTH
#4	9	0.10000E+01	775.0	1060.0	0.0	0.00	1.40	2.80	DEPTH
#5	9	0.10000E+01	755.0	1048.0	0.0	0.00	1.40	2.80	DEPTH
#6	9	0.10000E+01	790.0	1048.0	0.0	0.00	1.40	2.80	DEPTH
#7	9	0.10000E+01	770.0	1036.0	0.0	0.00	1.40	2.80	DEPTH
#8	9	0.10000E+01	805.0	1036.0	0.0	0.00	1.40	2.80	DEPTH
#9	9	0.10000E+01	785.0	1022.0	0.0	0.00	1.40	2.80	DEPTH
#10	9	0.10000E+01	820.0	1022.0	0.0	0.00	1.40	2.80	DEPTH
#11	9	0.10000E+01	800.0	1005.0	0.0	0.00	1.40	2.80	DEPTH
#12	9	0.10000E+01	835.0	1005.0	0.0	0.00	1.40	2.80	DEPTH
#13	9	0.10000E+01	815.0	992.0	0.0	0.00	1.40	2.80	DEPTH
#14	9	0.10000E+01	850.0	992.0	0.0	0.00	1.40	2.80	DEPTH
#15	9	0.10000E+01	830.0	980.0	0.0	0.00	1.40	2.80	DEPTH
#16	9	0.10000E+01	865.0	980.0	0.0	0.00	1.40	2.80	DEPTH
#17	9	0.10000E+01	845.0	968.0	0.0	0.00	1.40	2.80	DEPTH
#18	9	0.10000E+01	880.0	968.0	0.0	0.00	1.40	2.80	DEPTH
#19	9	0.10000E+01	860.0	954.0	0.0	0.00	1.40	2.80	DEPTH
#20	9	0.10000E+01	895.0	954.0	0.0	0.00	1.40	2.80	DEPTH

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** SOURCE IDs DEFINED IN GROUP GROUPS ***

GROUP ID	SOURCE IDs
ALL	#1 , #2 , #3 , #4 , #5 , #6 , #7 , #8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 , #20 ,

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** SOURCE PARTICULATE DATA ***

*** SOURCE ID = #1 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY (METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #2 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY (METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #3 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY (METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DEBUG

*** SOURCE PARTICULATE DATA ***

*** SOURCE ID = #4 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, [illegible], 0.08000, [illegible], [illegible], [illegible], [illegible],

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, [illegible], [illegible], [illegible], [illegible],

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, [illegible], [illegible], [illegible], [illegible],

*** SOURCE ID = #5 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, [illegible], [illegible], [illegible], [illegible],

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, [illegible], [illegible], [illegible], [illegible],

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #6 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19010, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DESUBP

*** SOURCE PARTICULATE DATA ***

*** SOURCE ID = #7 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #8 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #9 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DEFAULT

*** SOURCE PARTICULATE DATA ***

*** SOURCE ID = 010 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.00000, 0.00000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = 011 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.00000, 0.00000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = 012 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.00000, 0.00000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DEBUG

*** SOURCE PARAMETER VALUES ***

*** SOURCE ID = #13 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #14 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #15 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DEFAULT

*** SOURCE PARTICULATE DATA ***

*** SOURCE ID - #16 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY (METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19010, [illegible],

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #17 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY (METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19010, [illegible],

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #18 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY (METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19010, [illegible],

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** SOURCE PARTICULATE DATA ***

*** SOURCE ID = #19 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, [illegible], [illegible], 0.0900[illegible], [illegible],

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.0264[illegible], [illegible], [illegible], [illegible],

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, [illegible], [illegible], [illegible], [illegible],

*** SOURCE ID = #20 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, [illegible], [illegible], [illegible], [illegible], [illegible],

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.0264[illegible], [illegible], [illegible], [illegible], [illegible],

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, [illegible], [illegible], [illegible], [illegible],

*** MODELING OPTIONS USED: DEPOS RURAL FLAT [illegible]

* SOURCE EMISSION RATE SCALARS WHICH VARY BY EACH HOUR OF THE DAY *

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
SOURCE ID = #1 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #2 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #3 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #4 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #5 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

* SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
SOURCE ID = #6 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #7 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #8 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #9 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #10 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DEFAULT

* SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
SOURCE ID = #11 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #12 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #13 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #14 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #15 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00

*** MODELING OPTIONS USED: DEFAULT RURAL FLAT DFAULT

* SOURCE EMISSION RATE SCALARS WHICH [illegible] OF THE [illegible] *

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
SOURCE ID = #16 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #17 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #18 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #19 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #20 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: NFXR ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

500.0, 550.0, 600.0, 650.0, 700.0, 750.0, 800.0, 850.0, 900.0, 950.0,
1000.0,

*** Y-COORDINATES OF GRID ***
(METERS)

600.0, 650.0, 700.0, 750.0, 800.0, 850.0, 900.0, 950.0, 1000.0, 1050.0,
1100.0, 1150.0,

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(12.0,	12.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(-12.0,	200.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(-12.0,	400.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(12.0,	600.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(12.0,	812.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(-200.0,	812.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(-400.0,	812.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(-440.0,	900.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(-350.0,	1100.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(-265.0,	1300.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(-195.0,	1500.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(-100.0,	1578.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(100.0,	1578.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(300.0,	1578.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(500.0,	1578.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(700.0,	1578.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(900.0,	1578.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(1100.0,	1578.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(1300.0,	1578.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(1500.0,	1578.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(1568.0,	1500.0,	0.0,	0.0);	([illegible],	[illegible],	[illegible],	[illegible]);
(1568.0,	1300.0,	0.0,	0.0);	(1568.0,	1200.0,	0.0,	0.0);
(1568.0,	1100.0,	0.0,	0.0);	(1568.0,	1000.0,	0.0,	0.0);
(1568.0,	900.0,	0.0,	0.0);	(1568.0,	800.0,	0.0,	0.0);
(1568.0,	700.0,	0.0,	0.0);	(1568.0,	600.0,	0.0,	0.0);
(1568.0,	500.0,	0.0,	0.0);	(1568.0,	400.0,	0.0,	0.0);
(1568.0,	300.0,	0.0,	0.0);	(1568.0,	200.0,	0.0,	0.0);
(1568.0,	100.0,	0.0,	0.0);	(1568.0,	-12.0,	0.0,	0.0);
(1400.0,	-12.0,	0.0,	0.0);	(1200.0,	-12.0,	0.0,	0.0);
(1000.0,	-12.0,	0.0,	0.0);	(800.0,	-12.0,	0.0,	0.0);
(600.0,	-12.0,	0.0,	0.0);	(400.0,	-12.0,	0.0,	0.0);
(200.0,	-12.0,	0.0,	0.0);				

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DEFAULT

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1 YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: E:\ALLAMAMET\ALEX87.BIN
SURFACE STATION NO.: 74754
NAME: UNKNOWN
YEAR: 1987

FORMAT: UNFORM
UPPER AIR STATION NO.: [illegible]
NAME: UNKNOWN
YEAR: 1987

YEAR	MONTH	DAY	HOUR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN
87	1	1	1	181.0	1.00	277.6	[illegible]	[illegible]	[illegible]
87	1	1	2	218.0	1.00	276.5	[illegible]	[illegible]	[illegible]
87	1	1	3	224.0	1.00	275.4	[illegible]	608.[illegible]	29.0
87	1	1	4	213.0	1.00	275.1	[illegible]	607.[illegible]	29.0
87	1	1	5	213.0	1.00	275.4	[illegible]	607.2	29.0
87	1	1	6	212.0	1.00	273.7	[illegible]	606.9	29.0
87	1	1	7	215.0	1.00	273.1	7	606.4	29.0
87	1	1	8	213.0	1.00	272.6	[illegible]	68.[illegible]	94.1
87	1	1	9	207.0	1.00	272.6	[illegible]	157.[illegible]	179.1
87	1	1	10	211.0	1.00	272.0	4	246.8	263.9
87	1	1	11	214.0	1.00	271.5	2	335.8	348.[illegible]
87	1	1	12	206.0	1.00	272.0	2	421.9	433.[illegible]
87	1	1	13	213.0	1.00	271.5	2	513.9	518.2
87	1	1	14	209.0	1.00	272.6	2	603.0	602.0
87	1	1	15	212.0	1.00	273.7	2	603.0	603.0
87	1	1	16	94.0	1.54	277.6	3	603.0	603.0
87	1	1	17	101.0	1.54	281.5	3	603.0	603.0
87	1	1	18	97.0	2.57	284.8	4	620.3	630.3
87	1	1	19	144.0	4.12	285.9	5	642.[illegible]	451.8
87	1	1	20	127.0	6.17	285.9	4	665.0	665.0
87	1	1	21	140.0	6.17	286.5	4	687.3	687.3
87	1	1	22	132.0	6.69	285.9	4	709.7	709.7
87	1	1	23	140.0	3.09	284.8	5	732.0	111.2
87	1	1	24	140.0	2.06	282.0	6	754.3	26.0

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

*** MODELING OPTIONS USED: DEPOS RURAL FLAT PRIME

*** THE PERIOD (8760 HRS) STARTING [illegible] CONTROL FILE GROUP: ALL ***
HOURLY SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** DEPOSIT ID: DEP4 , DEPOSIT RATE: 0.00[illegible] ***

** LOCS OF GRID: [illegible] **

Y-COORD (METERS)	X-COORD (METERS) 500.00	550.00	600.00	[illegible]	[illegible]	[illegible]	800.00	[illegible]	[illegible]
1150.00	39.05822	72.12059	157.77373	[illegible]	[illegible]	[illegible]	372.72874	238.70917	[illegible]
1100.00	25.76255	62.19747	125.97797	[illegible]	[illegible]	[illegible]	1357.44153	565.74724	285.31683
1050.00	35.00405	59.07787	113.76348	[illegible]	[illegible]	[illegible]	1074.86230	1694.28076	591.27075
1000.00	31.13151	51.85833	97.56931	[illegible]	[illegible]	[illegible]	18155.57810	11874.62890	1571.00574
950.00	28.99740	46.20643	80.65607	[illegible]	[illegible]	[illegible]	1851.99146	6677.80811	[illegible]
900.00	24.79791	38.47402	64.29585	[illegible]	195.19609	[illegible]	617.03302	950.11096	920.13605
850.00	21.88650	33.00846	51.66953	[illegible]	120.45141	[illegible]	260.95413	315.52374	306.55325
800.00	19.24180	27.69421	39.71032	[illegible]	77.69788	[illegible]	130.81859	145.50682	139.49564
750.00	16.35767	22.61577	30.62101	[illegible]	51.51492	65.23147	74.77959	80.13646	75.18953
700.00	14.07190	18.50305	23.57113	[illegible]	35.02052	41.93212	47.34564	49.77818	45.59089
650.00	12.08513	14.94864	18.14470	[illegible]	24.28771	28.64385	32.25889	33.37397	30.06067
600.00	10.13259	12.07142	14.07901	[illegible]	17.46318	20.43853	23.09397	23.57386	21.03261

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DEPOSIT

*** THE PERIOD (8760 HRS) TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** NETWORK ID: NEAR ; NETWORK TYPE: GRIDCART ***

** DEPO OF OTHER IN GRAM M**2 **

Y-COORD (METERS)	X-COORD (METERS) 950.00	1000.00
1150.00	95.99802	61.40586
1100.00	153.96484	88.16740
1050.00	255.51852	125.96425
1000.00	419.95389	163.02663
950.00	578.97034	184.24834
900.00	528.20917	211.60632
850.00	242.90752	171.59380
800.00	126.38534	99.49093
750.00	72.94596	63.83995
700.00	44.46737	43.13431
650.00	29.02535	29.45080
600.00	19.96492	20.71821

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** DEPO OF OTHER [illegible] **

X-COORD (M)	Y-COORD (M)	DEPO	X-COORD (M)	Y-COORD (M)	DEPO
12.00	-12.00	0.89488	[illegible]	[illegible]	0.95775
12.00	200.00	1.07272	[illegible]	[illegible]	1.17178
12.00	400.00	1.25056	[illegible]	[illegible]	1.[illegible]7
12.00	600.00	1.60543	[illegible]	[illegible]	1.67331
12.00	812.00	1.65192	[illegible]	[illegible]	1.39583
300.00	812.00	1.04089	[illegible]	[illegible]	0.85674
400.00	812.00	0.72664	[illegible]	[illegible]	0.64112
440.00	900.00	0.77991	[illegible]	[illegible]	0.86752
350.00	1100.00	0.88564	[illegible]	[illegible]	1.07667
265.00	1300.00	1.18665	[illegible]	[illegible]	1.[illegible]58
195.00	1500.00	1.59017	[illegible]	[illegible]	1.90951
100.00	1578.00	2.41529	[illegible]	[illegible]	4.[illegible]86
100.00	1578.00	4.64797	[illegible]	[illegible]	5.94568
300.00	1578.00	7.30469	[illegible]	[illegible]	9.24370
500.00	1578.00	9.23378	[illegible]	[illegible]	8.86261
700.00	1578.00	8.63004	[illegible]	[illegible]	7.59368
900.00	1578.00	6.22266	[illegible]	[illegible]	5.37436
1100.00	1578.00	4.49172	[illegible]	[illegible]	3.30101
1300.00	1578.00	2.45779	[illegible]	[illegible]	2.02935
1500.00	1578.00	1.68549	[illegible]	[illegible]	1.46389
1568.00	1500.00	1.68996	1568.00	1400.00	2.02639
1568.00	1300.00	2.26318	1568.00	1200.00	2.48864
1568.00	1100.00	2.88642	1568.00	1000.00	2.99430
1568.00	900.00	3.07456	1568.00	800.00	3.08396
1568.00	700.00	2.90755	1568.00	600.00	3.87218
1568.00	500.00	3.84394	1568.00	400.00	3.47326
1568.00	300.00	2.92802	1568.00	200.00	2.18624
1568.00	100.00	1.73557	1568.00	-12.00	1.46827
1400.00	-12.00	1.75612	1200.00	-12.00	1.79298
1000.00	-12.00	1.58050	800.00	-12.00	2.32647
600.00	12.00	1.49036	400.00	-12.00	1.36259
200.00	-12.00	1.21971			

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DRAUNT

*** THE MAXIMUM 50 1-HR TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

** DEPO OF OTHER [illegible] **

RANK	DEPO	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	F TYPE	RANK	DEPO	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	F TYPE
1.	30.00317	(87120419)	AT (	900.00, 950.00)	GC	[illegible]	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
2.	29.90839	(87101720)	AT (	900.00, 950.00)	GC	[illegible]	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
3.	29.82199	(87011107)	AT (	900.00, 950.00)	GC	[illegible]	[illegible]	[illegible]	AT (	900.00, 950.00)	GC
4.	29.82199	(87100120)	AT (	900.00, 950.00)	GC	[illegible]	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
5.	27.79210	(87092520)	AT (	900.00, 950.00)	GC	[illegible]	[illegible]	[illegible]	AT (	900.00, 950.00)	GC
6.	27.24867	(87011007)	AT (	900.00, 950.00)	GC	1.	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
7.	27.06211	(87112819)	AT (	900.00, 950.00)	GC	[illegible]	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
8.	26.44453	(87092208)	AT (	900.00, 950.00)	GC	[illegible]	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
9.	26.29374	(87122120)	AT (	900.00, 950.00)	GC	[illegible]	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
10.	25.88015	(87032706)	AT (	900.00, 950.00)	GC	[illegible]	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
11.	25.65570	(87071406)	AT (	750.00, 1050.00)	GC	[illegible]	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
12.	25.56029	(87112609)	AT (	900.00, 950.00)	GC	[illegible]	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
13.	25.53865	(87010620)	AT (	750.00, 1050.00)	GC	[illegible]	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
14.	25.47094	(87012408)	AT (	750.00, 1050.00)	GC	[illegible]	24.14114	[illegible]	AT (	900.00, 950.00)	GC
15.	25.39386	(87082119)	AT (	750.00, 1050.00)	GC	40.	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
16.	25.36972	(87092719)	AT (	750.00, 1050.00)	GC	41.	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
17.	25.32323	(87072418)	AT (	750.00, 1050.00)	GC	42.	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
18.	25.25982	(87051317)	AT (	750.00, 1050.00)	GC	43.	[illegible]	[illegible]	AT (	750.00, 1050.00)	GC
19.	25.25982	(87120216)	AT (	750.00, 1050.00)	GC	44.	[illegible]	[illegible]	AT (	900.00, 950.00)	GC
20.	25.25002	(87120709)	AT (	750.00, 1050.00)	GC	45.	24.09029	[illegible]	AT (	900.00, 950.00)	GC
21.	25.24101	(87082018)	AT (	750.00, 1050.00)	GC	46.	24.08061	[illegible]	AT (	750.00, 1050.00)	GC
22.	25.22877	(87051914)	AT (	750.00, 1050.00)	GC	47.	24.07407	(87081207)	AT (	900.00, 950.00)	GC
23.	25.19791	(87082206)	AT (	750.00, 1050.00)	GC	48.	24.04585	[illegible]	AT (	900.00, 950.00)	GC
24.	25.09391	(87010616)	AT (	750.00, 1050.00)	GC	49.	24.01879	(87011815)	AT (	900.00, 950.00)	GC
25.	25.09334	(87100109)	AT (	900.00, 950.00)	GC	50.	23.94795	(87012011)	AT (	800.00, 1000.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DEFAULT

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** DEPO OF OTHER IN GM/M**2 **

GROUP ID		TOTAL DEPO	RECEPTOR (XR, YR, ZELEV, ZHILL)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	18646.18160 AT	(750.00, 1050.00, 0.00, 0.00)	GC	NEAR
	2ND HIGHEST VALUE IS	18155.57810 AT	(800.00, 1000.00, 0.00, 0.00)	GC	NEAR
	3RD HIGHEST VALUE IS	11874.62890 AT	(850.00, 1000.00, 0.00, 0.00)	GC	NEAR
	4TH HIGHEST VALUE IS	11771.18260 AT	(900.00, 950.00, 0.00, 0.00)	GC	NEAR
	5TH HIGHEST VALUE IS	10074.86230 AT	(800.00, 1050.00, 0.00, 0.00)	GC	NEAR
	6TH HIGHEST VALUE IS	6677.80811 AT	(850.00, 950.00, 0.00, 0.00)	GC	NEAR

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** Message Summary For TSC2 Model Execution ***

Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 2900 Informational Message(s)

A Total of 2900 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** TSCST2 Finishes Successfully ***
****

ISCST2
Deposition Output Data
1988

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for the following Pages

5

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DEAUST

*** THE PERIOD (8784 HRS) TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** NETWORK ID: DEAR ; DEPOS OF TYPE: GRIDCART ***

** DEPO OF OTHER ID [illegible] **

Y-COORD (METERS)	X COORD (METERS) 500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00
1150.00	43.88718	73.36683	127.27505	271.[illegible]	[illegible]	[illegible]	618.58630	[illegible]	215.15[illegible]
1100.00	39.78611	69.03614	136.68239	354.44[illegible]	1557.80[illegible]	2503.10[illegible]	1816.22180	807.09497	374.37[illegible]
1050.00	41.44973	69.42492	133.69745	339.48[illegible]	1578.96[illegible]	18667.89[illegible]	10922.95120	2159.60376	729.58020
1000.00	39.71879	67.41280	131.09897	291.48[illegible]	836.31976	2530.36[illegible]	19745.44730	14239.35450	1802.24353
950.00	40.07033	64.99551	112.33372	217.84[illegible]	463.73035	979.84136	2350.01611	8112.91602	11534.08110
900.00	36.18268	55.30523	89.57375	159.12[illegible]	278.61639	480.12097	799.80603	1107.49500	968.60724
850.00	32.26498	46.69403	72.08418	113.72345	169.55800	252.98158	339.79971	375.42896	330.66901
800.00	27.26764	38.35743	55.40371	79.08153	107.72065	146.62010	170.13657	168.93887	149.27292
750.00	22.39711	30.69876	42.51131	56.61772	72.08065	90.42764	95.24444	91.45061	79.95786
700.00	18.69733	24.92369	32.97740	41.47375	49.95164	58.19528	59.15461	56.54874	47.90755
650.00	15.90729	20.37511	25.99315	30.87582	35.07500	39.13749	39.64632	37.99045	31.13662
600.00	13.44320	16.94975	20.76195	23.05130	25.22443	27.37089	28.20750	26.98999	21.56702

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE PERIOD (8784 HRS) TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** NETWORK ID: [illegible] ; RECEPTOR TYPE: [illegible] ***

** DATA OF OTHER [illegible] **

Y-COORD (METERS)	[illegible]	[illegible]
1150.00	135.45108	73.08630
1100.00	183.14847	94.01600
1050.00	272.97153	119.52583
1000.00	389.34351	140.24672
950.00	543.67673	157.31113
900.00	492.52704	194.32472
850.00	295.03326	155.98621
800.00	133.21703	104.06931
750.00	57.37593	66.16921
700.00	47.48956	45.21818
650.00	30.48627	31.63506
600.00	20.39907	22.44267

*** MODELING OPTIONS USED: DETOS RURAL FLAT DEPOUT

*** THE PERIOD (8784 HRS) TOTAL DEPOSITION VALUES DUE SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** DEPOSITION CALCULATIONS ***

** DEPO GROUND: AT LEVEL ** **

X-COORD (M)	Y-COORD (M)	TOTD	X-COORD (M)	Y-COORD (M)	TOTD
12.00	12.00	1.19950	[illegible]	[illegible]	[illegible]
12.00	200.00	1.67860	[illegible]	[illegible]	[illegible]
12.00	400.00	1.83654	[illegible]	[illegible]	2.13457
12.00	600.00	2.51474	[illegible]	[illegible]	2.51916
12.00	812.00	2.32161	[illegible]	[illegible]	1.78563
200.00	812.00	1.32780	[illegible]	[illegible]	1.03196
400.00	812.00	0.82671	[illegible]	[illegible]	0.71573
440.00	900.00	0.92727	[illegible]	[illegible]	1.09439
350.00	1100.00	1.06250	[illegible]	[illegible]	1.10889
265.00	1300.00	1.20901	[illegible]	[illegible]	1.55984
195.00	1500.00	1.74627	[illegible]	[illegible]	1.67524
100.00	1578.00	1.88262	[illegible]	[illegible]	2.35572
100.00	1578.00	3.02015	200.00	1578.00	4.32124
300.00	1578.00	6.90258	400.00	1578.00	9.90015
500.00	1578.00	12.72821	600.00	1578.00	12.97816
700.00	1578.00	15.42991	800.00	1578.00	14.35463
900.00	1578.00	10.84506	1000.00	1578.00	8.89733
1100.00	1578.00	6.95328	1200.00	1578.00	5.02211
1300.00	1578.00	3.47371	1400.00	1578.00	2.50657
1500.00	1578.00	1.85407	1568.00	1578.00	1.60884
1568.00	1500.00	1.86342	1568.00	1400.00	2.07638
1568.00	1300.00	2.10338	1568.00	1200.00	2.05264
1568.00	1100.00	2.41922	1568.00	1000.00	2.38281
1568.00	900.00	2.54114	1568.00	800.00	2.38930
1568.00	700.00	2.74186	1568.00	600.00	3.64581
1568.00	500.00	3.34018	1568.00	400.00	2.79562
1568.00	300.00	2.65143	1568.00	200.00	2.36312
1568.00	100.00	1.84178	1568.00	-12.00	1.51220
1400.00	-12.00	1.80500	1200.00	-12.00	1.94448
1000.00	-12.00	1.51123	800.00	-12.00	2.96031
600.00	-12.00	1.92030	400.00	-12.00	2.29731
200.00	-12.00	1.76066			

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE MAXIMUM 50 1-HR TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

** DEPO OF OTHER IN GRAMS/M**2 **

RANK	DEPO	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	DEPO	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	28.95425	(88112819)	AT (	900.00, 950.00)	GC	26.	25.04264	(88082213)	AT (	750.00, 1050.00)	GC
2.	27.78790	(88090806)	AT (	900.00, 950.00)	GC	27.	25.04201	(88111411)	AT (	750.00, 1050.00)	GC
3.	27.66387	(88012508)	AT (	900.00, 950.00)	GC	28.	24.97036	(88062112)	AT (	750.00, 1050.00)	GC
4.	27.54653	(88040719)	AT (	900.00, 950.00)	GC	29.	24.97036	(88070011)	AT (	750.00, 1050.00)	GC
5.	26.89522	(88090507)	AT (	900.00, 950.00)	GC	30.	24.89741	(88121509)	AT (	750.00, 1050.00)	GC
6.	25.83805	(88031706)	AT (	750.00, 1050.00)	GC	31.	24.77958	(88081207)	AT (	750.00, 1050.00)	GC
7.	25.75860	(88041319)	AT (	900.00, 950.00)	GC	32.	24.76327	(88081208)	AT (	750.00, 1050.00)	GC
8.	25.75248	(88100120)	AT (	900.00, 950.00)	GC	33.	24.68324	(88102220)	AT (	750.00, 1050.00)	GC
9.	25.75248	(88120208)	AT (	900.00, 950.00)	GC	34.	24.68079	(88102107)	AT (	900.00, 950.00)	GC
10.	25.65936	(88031006)	AT (	900.00, 950.00)	GC	35.	24.63800	(88043908)	AT (	750.00, 1050.00)	GC
11.	25.65845	(88022819)	AT (	900.00, 950.00)	GC	36.	24.63575	(88061118)	AT (	750.00, 1050.00)	GC
12.	25.65570	(88100907)	AT (	750.00, 1050.00)	GC	37.	24.62965	(88092719)	AT (	900.00, 950.00)	GC
13.	25.49551	(88120810)	AT (	750.00, 1050.00)	GC	38.	24.55272	(88012319)	AT (	900.00, 950.00)	GC
14.	25.48227	(88122011)	AT (	750.00, 1050.00)	GC	39.	24.51146	(88081210)	AT (	750.00, 1050.00)	GC
15.	25.45245	(88042906)	AT (	750.00, 1050.00)	GC	40.	24.48808	(88082211)	AT (	750.00, 1050.00)	GC
16.	25.42175	(88071808)	AT (	750.00, 1050.00)	GC	41.	24.30621	(88081209)	AT (	750.00, 1050.00)	GC
17.	25.41924	(88050119)	AT (	750.00, 1050.00)	GC	42.	24.30621	(88091213)	AT (	750.00, 1050.00)	GC
18.	25.39916	(88022518)	AT (	750.00, 1050.00)	GC	43.	24.30621	(88120714)	AT (	750.00, 1050.00)	GC
19.	25.39386	(88093012)	AT (	750.00, 1050.00)	GC	44.	24.18867	(88050119)	AT (	750.00, 1050.00)	GC
20.	25.33080	(88091707)	AT (	750.00, 1050.00)	GC	45.	24.13427	(88083119)	AT (	800.00, 1000.00)	GC
21.	25.25002	(88122114)	AT (	750.00, 1050.00)	GC	46.	24.09615	(88030609)	AT (	900.00, 950.00)	GC
22.	25.24101	(88091708)	AT (	750.00, 1050.00)	GC	47.	24.09615	(88093604)	AT (	900.00, 950.00)	GC
23.	25.23247	(88030908)	AT (	900.00, 950.00)	GC	48.	24.07407	(88012315)	AT (	900.00, 950.00)	GC
24.	25.22877	(88122917)	AT (	750.00, 1050.00)	GC	49.	24.07407	(88093116)	AT (	900.00, 950.00)	GC
25.	25.09857	(88072618)	AT (	750.00, 1050.00)	GC	50.	24.05343	(88011610)	AT (	750.00, 1050.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE SUMMARY OF MAXIMUM PERIOD (8784 HRS) RESULTS ***

** DEPO OF OTHER IN GRAMS/M**2 **

GROUP ID		TOTAL DEPO	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	19745.44730 AT (	800.00,	1000.00,	0.00,	0.00)	GC	NEAR
	2ND HIGHEST VALUE IS	18667.89450 AT (	750.00,	1050.00,	0.00,	0.00)	GC	NEAR
	3RD HIGHEST VALUE IS	14239.35450 AT (	850.00,	1000.00,	0.00,	0.00)	GC	NEAR
	4TH HIGHEST VALUE IS	11534.08110 AT (	900.00,	950.00,	0.00,	0.00)	GC	NEAR
	5TH HIGHEST VALUE IS	10922.95120 AT (	800.00,	1050.00,	0.00,	0.00)	GC	NEAR
	6TH HIGHEST VALUE IS	8112.91602 AT (	850.00,	950.00,	0.00,	0.00)	GC	NEAR

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: DEPOS RURAL FLAT FRAUT

*** Message Summary For ISC2 Model Execution ***

Summary of Total Messages ---------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 2125 Informational Message(s)

A Total of 2125 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

ISCST2
Deposition Output Data
1989

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5

*** MODELING OPTIONS USED: DEBOS RURAL FLAT DEFAULT

*** THE PERIOD (8760 HRS) TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** NETWORK ID: DEPA ; RECEPTOR TYPE: DISCRET ***

** DEPO OF CHEM: DEPOSITION **

Y-COORD (METERS)	X-COORD (METERS) 500.00	550.00	600.00	[illegible]	[illegible]	[illegible]	800.00	850.00	900.00
1150.00	50.07481	87.90321	160.82372	[illegible]	[illegible]	[illegible]	629.27022	464.36681	242.82024
1100.00	48.56733	82.67899	163.78426	[illegible]	[illegible]	[illegible]	1821.76455	913.46836	330.14053
1050.00	45.24677	75.16675	141.54158	[illegible]	[illegible]	[illegible]	8769.89063	1943.64197	687.56842
1000.00	37.79760	63.31616	120.35519	[illegible]	[illegible]	[illegible]	23816.02340	13040.54980	1561.08105
950.00	34.09732	55.87060	101.35645	[illegible]	[illegible]	[illegible]	2613.46723	8154.15682	8944.09375
900.00	30.95351	49.64584	88.15411	[illegible]	[illegible]	[illegible]	977.69197	1415.75977	1084.54559
850.00	29.08071	45.66447	77.02666	[illegible]	[illegible]	[illegible]	410.09500	467.62155	413.88666
800.00	26.67947	40.89359	64.17162	[illegible]	[illegible]	[illegible]	220.51816	222.60393	197.65933
750.00	24.21456	35.90327	52.40065	[illegible]	[illegible]	[illegible]	123.13767	121.67780	109.12778
700.00	21.95761	31.11409	42.39317	[illegible]	[illegible]	[illegible]	75.83428	75.29747	67.13663
650.00	19.83430	26.61459	34.12821	[illegible]	[illegible]	[illegible]	50.52966	50.31386	44.66130
600.00	17.69759	22.50293	27.32831	[illegible]	[illegible]	[illegible]	35.61649	35.49747	31.41247

*** MODELING OPTIONS USED: DEPOS RURAL FLAT [illegible]

*** THE PERIOD (8760 HRS) TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** NETWORK ID: [illegible] , NETWORK TYPE: [illegible] ***

** DEPO OF OTHER [illegible] **

X-COORD (METERS)

Y-COORD (METERS)	950.00	1000.00
1150.00	132.25850	73.71164
1100.00	177.84081	82.77429
1050.00	237.95515	91.04492
1000.00	264.61328	82.17181
950.00	303.60568	90.96310
900.00	400.44159	147.19609
850.00	253.99336	126.50326
800.00	153.74573	94.63047
750.00	96.29575	71.41785
700.00	61.03699	53.57474
650.00	40.73328	38.63428
600.00	28.51057	27.66672

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 , #8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 , #20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** DEPO OF OTHER [illegible]/M**2 **

X COORD (M)	Y-COORD (M)	DEPO	X COORD (M)	Y-COORD (M)	DEPO
12.00	-12.00	1.48657	-12.00	[illegible]	1.54589
12.00	200.00	1.60448	12.00	[illegible]	1.66709
12.00	400.00	1.77014	12.00	[illegible]	1.89143
12.00	600.00	2.02564	-12.00	[illegible]	2.12331
12.00	812.00	2.00566	-100.00	812.00	1.50331
200.00	812.00	1.14278	300.00	812.00	0.89244
400.00	812.00	0.72752	-175.00	812.00	0.64364
440.00	900.00	0.83860	-350.00	1000.00	1.09004
350.00	1100.00	1.30017	300.00	1200.00	1.48642
265.00	1300.00	1.63312	250.00	1400.00	1.71362
195.00	1500.00	2.19652	160.00	1568.00	2.34696
100.00	1578.00	2.63321	0.00	1578.00	3.13247
100.00	1578.00	3.73380	300.00	1578.00	4.61405
300.00	1578.00	6.28278	100.00	1578.00	8.62193
500.00	1578.00	12.52425	200.00	1578.00	11.38529
700.00	1578.00	12.22231	900.00	1578.00	15.75971
900.00	1578.00	12.06427	1000.00	1578.00	9.72839
1100.00	1578.00	8.36083	1200.00	1578.00	5.94511
1300.00	1578.00	3.91054	1400.00	1578.00	2.69036
1500.00	1578.00	1.89662	1568.00	1578.00	1.61093
1568.00	1500.00	1.85342	1568.00	1400.00	1.97095
1568.00	1300.00	1.74766	1568.00	1300.00	1.33746
1568.00	1100.00	1.02714	1568.00	1000.00	1.44574
1568.00	900.00	1.47591	1568.00	800.00	1.14834
1568.00	700.00	1.69362	1568.00	600.00	2.87478
1568.00	500.00	2.65919	1568.00	400.00	2.20991
1568.00	300.00	2.16381	1568.00	200.00	1.96656
1568.00	100.00	1.66970	1568.00	12.00	1.52100
1400.00	-12.00	2.34824	1200.00	12.00	2.36574
1000.00	-12.00	2.48788	800.00	-12.00	3.57164
600.00	-12.00	2.64190	400.00	-12.00	2.90468
200.00	-12.00	2.41503			

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE MAXIMUM 50 1-HR TOTAL EFFECTIVE VALUES FOR SOURCE GROUP: ALL ***
EMITTING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

** LIST OF COMB. [illegible] **

RANK	DELO	(YYMMDDHH)	AT	RECEPTOR (X,Y)	(Z)	TYPE	[illegible]	[illegible]	(YYMMDDHH)	AT	RECEPTOR (X,Y)	(Z)	TYPE
1.	27.66287	(89092208)	AT (	900.00,	950.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	750.00,	1050.00)	OC
2.	27.58057	(89110307)	AT (	900.00,	950.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	750.00,	1050.00)	OC
3.	26.26065	(89041208)	AT (	900.00,	950.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	750.00,	1050.00)	OC
4.	25.83651	(89082306)	AT (	750.00,	1050.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	750.00,	1050.00)	OC
5.	25.56029	(89072007)	AT (	900.00,	950.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	750.00,	1050.00)	OC
6.	25.49551	(89010219)	AT (	750.00,	1050.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	750.00,	1050.00)	OC
7.	25.49551	(89111407)	AT (	750.00,	1050.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	750.00,	1050.00)	OC
8.	25.47094	(89121008)	AT (	750.00,	1050.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	750.00,	1050.00)	OC
9.	25.41924	(89011408)	AT (	750.00,	1050.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	750.00,	1050.00)	OC
10.	25.36972	(89071320)	AT (	750.00,	1050.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	750.00,	1050.00)	OC
11.	25.32082	(89101020)	AT (	750.00,	1050.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	750.00,	1050.00)	OC
12.	25.30741	(89041809)	AT (	750.00,	1050.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	750.00,	1050.00)	OC
13.	25.30741	(89102413)	AT (	750.00,	1050.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	900.00,	950.00)	OC
14.	25.25002	(89021216)	AT (	750.00,	1050.00)	[illegible]	[illegible]	[illegible]	[illegible]	AT (	750.00,	1050.00)	OC
15.	25.25002	(89051408)	AT (	750.00,	1050.00)	OC	40.	23.91733	(89041109)	AT (	800.00,	1000.00)	OC
16.	25.25002	(89120709)	AT (	750.00,	1050.00)	OC	41.	23.91733	(89100709)	AT (	800.00,	1000.00)	OC
17.	25.24281	(89022408)	AT (	750.00,	1050.00)	OC	42.	23.91732	(89120116)	AT (	800.00,	1000.00)	OC
18.	25.22877	(89041817)	AT (	750.00,	1050.00)	OC	43.	23.83946	(89013017)	AT (	900.00,	950.00)	OC
19.	25.10845	(89092206)	AT (	900.00,	950.00)	OC	44.	23.82206	(89031918)	AT (	800.00,	1000.00)	OC
20.	25.09971	(89082507)	AT (	750.00,	1050.00)	OC	45.	23.81290	(89120111)	AT (	900.00,	950.00)	OC
21.	25.09971	(89111807)	AT (	750.00,	1050.00)	OC	46.	23.81290	(89120114)	AT (	900.00,	950.00)	OC
22.	25.09008	(89050420)	AT (	750.00,	1050.00)	OC	47.	23.79865	(89092310)	AT (	800.00,	1000.00)	OC
23.	25.04204	(89060708)	AT (	750.00,	1050.00)	OC	48.	23.79865	(89121717)	AT (	800.00,	1000.00)	OC
24.	25.04204	(89111406)	AT (	750.00,	1050.00)	OC	49.	23.77854	(89092810)	AT (	800.00,	1000.00)	OC
25.	25.02076	(89031816)	AT (	750.00,	1050.00)	OC	50.	23.77151	(89081618)	AT (	900.00,	950.00)	OC

*** RECEPTOR TYPES: OC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** DEPO OF OTHER IN GRAMS/M**2 **

GROUP ID		TOTAL DEPO	RECEPTOR (XR, YR, ZELEV, ZHILL)				OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	22816.02340 AT (	800.00,	1000.00,	0.00,	0.00)	GC	NEAR
	2ND HIGHEST VALUE IS	19269.78910 AT (	750.00,	1050.00,	0.00,	0.00)	GC	NEAR
	3RD HIGHEST VALUE IS	13040.54980 AT (	850.00,	1000.00,	0.00,	0.00)	GC	NEAR
	4TH HIGHEST VALUE IS	8944.09375 AT (	900.00,	950.00,	0.00,	0.00)	GC	NEAR
	5TH HIGHEST VALUE IS	8789.89063 AT (	800.00,	1050.00,	0.00,	0.00)	GC	NEAR
	6TH HIGHEST VALUE IS	8154.15088 AT (	850.00,	950.00,	0.00,	0.00)	GC	NEAR

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

Summary of Total Messages --- ----

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 2067 Informational Message(s)

A Total of 2067 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

ISCST2
Deposition Output Data
1990

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4

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** NETWORK ID: NEAR ; NETWORK TYPE: GRIDCART ***

** DEPO OF OTHER IN GRAMS/M**2 **

Y-COORD (METERS)	X-COORD (METERS) 500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00
1150.00	42.50860	88.23190	200.86189	390.22437	713.43121	889.95325	600.67328	328.35068	163.60855
1100.00	31.11953	56.30466	124.52994	396.16681	1958.15417	3613.81567	1678.31885	671.12000	268.66208
1050.00	30.42756	50.10831	93.92562	227.67961	962.49731	17982.43950	9312.80762	1777.03650	520.62994
1000.00	24.60645	40.27113	73.59954	153.95761	472.63974	1950.21094	20069.67970	13160.29200	1280.79724
950.00	20.90144	32.59087	53.66152	109.48057	268.43719	716.70759	1816.86938	5940.20166	7480.65918
900.00	16.56475	24.36712	41.23417	82.09746	165.80112	355.69569	663.56494	1128.47314	907.32471
850.00	13.96082	20.93286	35.51430	61.97473	107.26263	202.93845	322.30566	419.93076	336.55090
800.00	11.92989	17.99870	29.11833	45.82237	74.44716	128.58066	175.94136	200.68195	156.51996
750.00	10.21261	15.60188	24.07769	35.47265	54.41164	81.69309	106.38675	114.24599	85.88468
700.00	9.15576	13.78797	20.22243	28.00345	40.17565	57.51565	70.21436	72.98869	53.07151
650.00	8.53659	12.39639	16.94802	21.95926	29.74867	40.61660	49.36744	50.04723	35.80221
600.00	8.04974	10.94822	14.03054	17.19892	22.28199	29.85871	36.31963	36.02860	25.70037

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** NETWORK ID: NEWR ; NETWORK TYPE: GRIDCART ***

** DEPO OF OTHER [illegible] **

Y-COORD (METERS)	950.00	1000.00
1150.00	81.85763	45.87325
1100.00	113.07928	54.44230
1050.00	169.62779	70.93668
1000.00	219.55228	80.06647
950.00	281.08922	87.73289
900.00	292.53400	97.88049
850.00	201.10086	94.55608
800.00	118.57925	75.81983
750.00	71.79419	57.23924
700.00	44.00308	41.81931
650.00	28.37139	29.42513
600.00	19.41599	20.22127

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** DEPO OF OTHER: DEPOSITION **

X-COORD (M)	Y-COORD (M)	DEPO
12.00	-12.00	0.65970
12.00	200.00	0.61[illegible]
12.00	400.00	0.71394
12.00	600.00	1.17504
12.00	812.00	1.16265
200.00	812.00	0.68473
400.00	812.00	0.47126
440.00	900.00	0.62704
350.00	1100.00	0.94280
265.00	1300.00	0.94934
195.00	1500.00	1.92769
100.00	1578.00	3.27163
100.00	1578.00	5.27928
300.00	1578.00	7.74170
500.00	1578.00	13.77179
700.00	1578.00	16.62095
900.00	1578.00	11.87986
1100.00	1578.00	4.76020
1300.00	1578.00	2.43804
1500.00	1578.00	1.04371
1568.00	1500.00	1.06914
1568.00	1300.00	1.15600
1568.00	1100.00	1.28149
1568.00	900.00	1.64644
1568.00	700.00	1.12446
1568.00	500.00	2.02553
1568.00	300.00	1.50992
1568.00	100.00	1.42305
1400.00	-12.00	1.82977
1000.00	-12.00	1.83795
600.00	-12.00	1.90922
200.00	-12.00	1.24328

X-COORD (M)	Y-COORD (M)	DEPO
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	0.93[illegible]
[illegible]	[illegible]	1.28961
[illegible]	[illegible]	0.87793
[illegible]	[illegible]	0.55482
[illegible]	[illegible]	0.42889
[illegible]	1600.00	0.89160
[illegible]	1200.00	0.86316
[illegible]	1400.00	1.26268
[illegible]	1578.00	2.67268
[illegible]	1578.00	4.36489
200.00	1578.00	6.21059
400.00	1578.00	10.85771
600.00	1578.00	15.41673
800.00	1578.00	17.07443
1000.00	1578.00	6.73947
1200.00	1578.00	3.69739
1400.00	1578.00	1.49806
1568.00	1578.00	0.90221
1568.00	1400.00	1.25250
1568.00	1200.00	0.87679
1568.00	1000.00	1.92074
1568.00	800.00	0.87783
1568.00	600.00	1.62428
1568.00	400.00	1.70269
1568.00	200.00	1.60734
1568.00	-12.00	1.20779
1200.00	-12.00	1.60580
800.00	-12.00	4.13118
400.00	-12.00	1.60424

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE MAXIMUM 50 1-HR TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

** DEPO OF OTHER IN GRAMS/M**2 **

RANK	DEPO	(YYMMDDHH)	AT	RECEPTOR (XR,YR)		OF TYPE	RANK	DEPO	(YYMMDDHH)	AT	RECEPTOR (XR,YR)		OF TYPE
1.	26.74335	(90111219)	AT (	900.00,	950.00)	GC	26.	25.09971	(90082320)	AT (	750.00,	1050.00)	GC
2.	26.29374	(90012014)	AT (	900.00,	950.00)	GC	27.	25.09971	(90091620)	AT (	750.00,	1050.00)	GC
3.	26.29374	(90082119)	AT (	900.00,	950.00)	GC	28.	25.09391	(90081518)	AT (	750.00,	1050.00)	GC
4.	25.75778	(90122520)	AT (	750.00,	1050.00)	GC	29.	25.04204	(90020611)	AT (	750.00,	1050.00)	GC
5.	25.65845	(90082120)	AT (	900.00,	950.00)	GC	30.	25.04204	(90090619)	AT (	750.00,	1050.00)	GC
6.	25.65570	(90041406)	AT (	750.00,	1050.00)	GC	31.	24.99829	(90071707)	AT (	750.00,	1050.00)	GC
7.	25.64836	(90032320)	AT (	750.00,	1050.00)	GC	32.	24.89741	(90072718)	AT (	750.00,	1050.00)	GC
8.	25.59570	(90011409)	AT (	750.00,	1050.00)	GC	33.	24.81270	(90112106)	AT (	750.00,	1050.00)	GC
9.	25.58628	(90100619)	AT (	750.00,	1050.00)	GC	34.	24.80034	(90102719)	AT (	750.00,	1050.00)	GC
10.	25.58628	(90102107)	AT (	750.00,	1050.00)	GC	35.	24.77522	(90122507)	AT (	750.00,	1050.00)	GC
11.	25.48227	(90020211)	AT (	750.00,	1050.00)	GC	36.	24.76751	(90081119)	AT (	900.00,	950.00)	GC
12.	25.41924	(90012410)	AT (	750.00,	1050.00)	GC	37.	24.63575	(90042117)	AT (	750.00,	1050.00)	GC
13.	25.36972	(90090120)	AT (	750.00,	1050.00)	GC	38.	24.57290	(90042719)	AT (	900.00,	950.00)	GC
14.	25.36972	(90091106)	AT (	750.00,	1050.00)	GC	39.	24.54146	(90020509)	AT (	750.00,	1050.00)	GC
15.	25.33080	(90042116)	AT (	750.00,	1050.00)	GC	40.	24.48808	(90081619)	AT (	750.00,	1050.00)	GC
16.	25.31509	(90040120)	AT (	750.00,	1050.00)	GC	41.	24.48808	(90081919)	AT (	750.00,	1050.00)	GC
17.	25.25002	(90091619)	AT (	750.00,	1050.00)	GC	42.	24.44111	(90061906)	AT (	900.00,	950.00)	GC
18.	25.23247	(90082019)	AT (	900.00,	950.00)	GC	43.	24.30621	(90052719)	AT (	750.00,	1050.00)	GC
19.	25.22877	(90011414)	AT (	750.00,	1050.00)	GC	44.	24.26379	(90030608)	AT (	750.00,	1050.00)	GC
20.	25.22877	(90071518)	AT (	750.00,	1050.00)	GC	45.	24.18850	(90052406)	AT (	750.00,	1050.00)	GC
21.	25.22877	(90090118)	AT (	750.00,	1050.00)	GC	46.	24.12159	(90011411)	AT (	800.00,	1000.00)	GC
22.	25.22877	(90090518)	AT (	750.00,	1050.00)	GC	47.	24.01331	(90010415)	AT (	900.00,	950.00)	GC
23.	25.19791	(90111606)	AT (	750.00,	1050.00)	GC	48.	23.96632	(90011311)	AT (	900.00,	950.00)	GC
24.	25.13643	(90090318)	AT (	750.00,	1050.00)	GC	49.	23.85437	(90060419)	AT (	800.00,	1000.00)	GC
25.	25.13643	(90121310)	AT (	750.00,	1050.00)	GC	50.	23.85437	(90072919)	AT (	800.00,	1000.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 3328 Informational Message(s)

A Total of 3328 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

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for the following Pages

2

*** MODELING OPTIONS USED: CONC RURAL FLAT , DFAULT

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	1333.47986 AT (	800.00,	1000.00,	0.00,	0.00)	CC	NEAR
	2ND HIGHEST VALUE IS	1329.03259 AT (	750.00,	1050.00,	0.00,	0.00)	CC	NEAR
	3RD HIGHEST VALUE IS	841.38568 AT (	800.00,	1050.00,	0.00,	0.00)	CC	NEAR
	4TH HIGHEST VALUE IS	783.31866 AT (	850.00,	950.00,	0.00,	0.00)	CC	NEAR
	5TH HIGHEST VALUE IS	757.36951 AT (	850.00,	1000.00,	0.00,	0.00)	CC	NEAR
	6TH HIGHEST VALUE IS	590.45129 AT (	750.00,	1000.00,	0.00,	0.00)	CC	NEAR

*** RECEPTOR TYPES: CC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** DEPO OF OTHER IN GRAMS/M**2 **

GROUP ID		TOTAL DEPO	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	20069.67970 AT (	800.00, [illegible], 0.00, 0.00)	GC	NEAR
	2ND HIGHEST VALUE IS	17982.43950 AT (	750.00, [illegible], 0.00, 0.00)	GC	NEAR
	3RD HIGHEST VALUE IS	13160.29200 AT (	850.00, [illegible], 0.00, 0.00)	GC	NEAR
	4TH HIGHEST VALUE IS	9312.80762 AT (	800.00, [illegible], 0.00, 0.00)	GC	NEAR
	5TH HIGHEST VALUE IS	7480.65918 AT (	900.00, [illegible], 0.00, 0.00)	GC	NEAR
	6TH HIGHEST VALUE IS	5940.20166 AT (	850.00, [illegible], 0.00, 0.00)	GC	NEAR

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** Message Summary For 1982 Model Execution ***

Summary of Total Messages ---- ---

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 3065 Informational Message(s)

A Total of 3065 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** 19CST2 Finishes Successfully ***
****

ISCST2
Deposition Output Data
1991

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for the following Pages

5

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** RECEPTOR ID: [illegible] ; RECEPTOR TYPE: [illegible] ***

** DEPO OF CONC [illegible] **

Y-COORD (METERS)	X-COORD (METERS) 500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00
1150.00	69.11284	134.27899	258.84128	494.51[illegible]	[illegible]	[illegible]	310.61269	164.61844	90.00114
1100.00	52.90997	94.42381	202.89413	591.[illegible]	[illegible]	[illegible]	995.86053	370.10342	156.36516
1050.00	47.88547	79.66827	151.81763	375.45[illegible]	[illegible]	[illegible]	6763.77783	1019.50934	303.57309
1000.00	40.00610	68.32816	136.83784	300.[illegible]	[illegible]	[illegible]	21745.91410	8340.08008	795.47553
950.00	39.15576	65.63748	110.98077	203.[illegible]	[illegible]	[illegible]	2352.95288	7706.24854	5906.13135
900.00	36.79829	54.50713	84.56152	145.[illegible]	[illegible]	[illegible]	815.84143	1216.23547	896.61896
850.00	32.27186	45.16413	68.21974	102.[illegible]	[illegible]	[illegible]	359.28918	450.05618	351.50519
800.00	26.96538	36.51511	50.55470	67.[illegible]	[illegible]	[illegible]	190.38744	216.77524	169.04353
750.00	21.25068	27.99802	36.43552	46.51194	[illegible]	[illegible]	113.85682	123.58604	94.28973
700.00	16.85487	21.68782	27.34621	34.25[illegible]	[illegible]	[illegible]	75.17384	78.76327	58.56961
650.00	13.86971	17.39176	21.35464	25.90[illegible]	[illegible]	[illegible]	53.01320	53.90842	39.38325
600.00	11.68944	14.27296	17.08641	19.51[illegible]	[illegible]	[illegible]	39.11774	38.79721	28.08691

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** RECEPTOR ID: DEPO ; RECEPTOR TYPE: GRIDCART ***

** DEPO OF OTHER RECEPTORS: **

Y-COORD (METERS)	X-COORD (METERS) 950.00	1000.00
1150.00	52.63044	32.39891
1100.00	76.23705	41.18604
1050.00	118.02713	55.46408
1000.00	161.55402	55.72890
950.00	189.93637	58.09891
900.00	233.87665	81.61951
850.00	186.59840	74.62598
800.00	118.52925	69.32958
750.00	75.23801	54.70684
700.00	48.47290	41.21988
650.00	32.28972	30.71483
600.00	22.37267	22.49051

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** DEPO OF OTHER IN GRAMS/M**2 **

X-COORD (M)	Y-COORD (M)	DEPO	X-COORD (M)	Y-COORD (M)	DEPO
12.00	12.00	0.95946	12.00	100.00	0.99153
12.00	200.00	1.14445	12.00	300.00	1.43099
12.00	400.00	1.85963	12.00	500.00	2.39787
12.00	600.00	2.79423	-12.00	700.00	2.53442
12.00	812.00	1.99409	-100.00	812.00	1.51543
200.00	812.00	1.19869	-300.00	812.00	0.97495
400.00	812.00	0.81624	475.00	812.00	0.72548
440.00	900.00	0.89822	390.00	1000.00	1.21580
350.00	1100.00	1.44104	300.00	1200.00	1.47149
265.00	1300.00	1.64985	-230.00	1400.00	2.11234
195.00	1500.00	3.29456	-165.00	1568.00	3.90051
100.00	1578.00	4.45718	0.00	1578.00	5.15499
100.00	1578.00	5.57309	200.00	1578.00	6.25881
300.00	1578.00	6.52720	400.00	1578.00	9.14207
500.00	1578.00	12.84783	600.00	1578.00	10.81310
700.00	1578.00	8.36407	800.00	1578.00	7.89167
900.00	1578.00	4.67766	1000.00	1578.00	2.88030
1100.00	1578.00	2.60074	1200.00	1578.00	1.98375
1300.00	1578.00	1.28586	1400.00	1578.00	0.88864
1500.00	1578.00	0.78496	1568.00	1578.00	0.79735
1568.00	1500.00	1.10257	1568.00	1400.00	1.28739
1568.00	1300.00	1.00469	1568.00	1200.00	0.76847
1568.00	1100.00	0.95574	1568.00	1000.00	1.13290
1568.00	900.00	0.83831	1568.00	800.00	0.80064
1568.00	700.00	1.02232	1568.00	600.00	1.56622
1568.00	500.00	1.53416	1568.00	400.00	1.32028
1568.00	300.00	1.19370	1568.00	200.00	1.45929
1568.00	100.00	1.35991	1568.00	12.00	1.17761
1400.00	-12.00	1.69618	1200.00	12.00	1.98772
1000.00	-12.00	1.92430	800.00	12.00	4.50891
600.00	12.00	2.01621	400.00	-12.00	1.68415
200.00	-12.00	1.60466			

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE MAXIMUM 50 1-HR TOTAL DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

** DEPO OF OTHER IN GRAMS/M**2 **

RANK	DEPO	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	DEPO	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	27.60794	(91071320)	AT (	900.00, 950.00)	GP	26.	25.24281	(91051613)	AT (	750.00, 1050.00)	OC
2.	26.03244	(91102307)	AT (	750.00, 1050.00)	GP	27.	25.24281	(91090712)	AT (	750.00, 1050.00)	OC
3.	25.92584	(91100920)	AT (	750.00, 1050.00)	OC	28.	25.24281	(91102512)	AT (	750.00, 1050.00)	OC
4.	25.83805	(91102506)	AT (	750.00, 1050.00)	GP	29.	25.22877	(91061207)	AT (	750.00, 1050.00)	OC
5.	25.75860	(91020610)	AT (	900.00, 950.00)	GP	30.	25.22877	(91112910)	AT (	750.00, 1050.00)	OC
6.	25.56029	(91060308)	AT (	900.00, 950.00)	OC	31.	25.13643	(91120810)	AT (	750.00, 1050.00)	OC
7.	25.52467	(91041106)	AT (	750.00, 1050.00)	OC	32.	25.13066	(91090715)	AT (	750.00, 1050.00)	OC
8.	25.48227	(91012320)	AT (	750.00, 1050.00)	OC	33.	25.09391	(91071907)	AT (	750.00, 1050.00)	OC
9.	25.48227	(91021708)	AT (	750.00, 1050.00)	OC	34.	25.09391	(91093110)	AT (	750.00, 1050.00)	OC
10.	25.48227	(91090113)	AT (	750.00, 1050.00)	OC	35.	25.09391	(91120611)	AT (	750.00, 1050.00)	OC
11.	25.48227	(91090308)	AT (	750.00, 1050.00)	OC	36.	25.03361	(91041814)	AT (	750.00, 1050.00)	OC
12.	25.48227	(91090711)	AT (	750.00, 1050.00)	OC	37.	25.03361	(91050406)	AT (	750.00, 1050.00)	OC
13.	25.42175	(91012907)	AT (	750.00, 1050.00)	OC	38.	24.99829	(91040607)	AT (	750.00, 1050.00)	OC
14.	25.42175	(91051010)	AT (	750.00, 1050.00)	OC	39.	24.99829	(91063816)	AT (	750.00, 1050.00)	OC
15.	25.42175	(91061112)	AT (	750.00, 1050.00)	OC	40.	24.99829	(91103614)	AT (	750.00, 1050.00)	OC
16.	25.39916	(91052515)	AT (	750.00, 1050.00)	OC	41.	24.97036	(91012815)	AT (	750.00, 1050.00)	OC
17.	25.39916	(91120810)	AT (	750.00, 1050.00)	OC	42.	24.97036	(91081519)	AT (	750.00, 1050.00)	OC
18.	25.39386	(91102411)	AT (	750.00, 1050.00)	OC	43.	24.91263	(91081019)	AT (	900.00, 950.00)	OC
19.	25.33080	(91040711)	AT (	750.00, 1050.00)	OC	44.	24.91263	(91081318)	AT (	900.00, 950.00)	OC
20.	25.33080	(91051708)	AT (	750.00, 1050.00)	OC	45.	24.89741	(91062917)	AT (	750.00, 1050.00)	OC
21.	25.32376	(91102318)	AT (	750.00, 1050.00)	OC	46.	24.89741	(91091418)	AT (	750.00, 1050.00)	OC
22.	25.30741	(91060319)	AT (	750.00, 1050.00)	OC	47.	24.83086	(91042718)	AT (	750.00, 1050.00)	OC
23.	25.25982	(91090216)	AT (	750.00, 1050.00)	OC	48.	24.80136	(91051618)	AT (	750.00, 1050.00)	OC
24.	25.25002	(91083115)	AT (	750.00, 1050.00)	OC	49.	24.80034	(91091820)	AT (	750.00, 1050.00)	OC
25.	25.25002	(91120711)	AT (	750.00, 1050.00)	OC	50.	24.63525	(91041518)	AT (	750.00, 1050.00)	OC

*** RECEPTOR TYPES: OC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** DEPO OF OTHER IN GRAMS/M**2 **

GROUP ID		TOTAL DEPO	RECEPTOR (XR, YR, ZELEV, ZFLAG)				CP	TYPE	NEAREST GRID-ID
ALL	1ST HIGHEST VALUE IS	21745.91410 AT (	800.00,	1000.00,	0.00,	0.00)	OC		NEAR
	2ND HIGHEST VALUE IS	21167.38670 AT (	750.00,	1050.00,	0.00,	0.00)	OC		NEAR
	3RD HIGHEST VALUE IS	8340.08008 AT (	850.00,	1000.00,	0.00,	0.00)	OC		NEAR
	4TH HIGHEST VALUE IS	7706.24854 AT (	850.00,	950.00,	0.00,	0.00)	OC		NEAR
	5TH HIGHEST VALUE IS	6763.77783 AT (	800.00,	1050.00,	0.00,	0.00)	OC		NEAR
	6TH HIGHEST VALUE IS	5906.13135 AT (	900.00,	950.00,	0.00,	0.00)	OC		NEAR

*** RECEPTOR TYPES: OC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: DEPOS RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 3328 Informational Message(s)

A Total of 3328 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

ISCST2
Concentration Data
1987

```
CO STARTING
CO TITLEONE R&D Fabricating & Manufacturing Subpart X Facility (Rev)
CO TITLETWO Air Screening Assessment-Concentration (ug/m3) -1987
CO MODELOPT DFAULT CONC  RURAL
** AVERTIME   1  2  3  4  6  8 12 24 MONTH PERIOD
CO AVERTIME   1                            PERIOD
CO POLLUTID OTHER
** HALFLIFE or DCAYCOEF
CO TERRHGTS FLAT
CO ELEVUNIT METERS
** FLAGPOLE Flagdf
CO RUNORNOT RUN
** EVENFIL Evfile_____________.___ Evcpt
** SAVEFILE Savfil_____________.___ Dayinc Savfl2_____________.___
** INITFILE Inifil_____________.___
** MULTYEAR Mulout_____________.___ Multin_____________.___
CO ERRORFIL E:\LLAN\LLERR87.TXT
** SIGF_LVL
CO FINISHED

SO STARTING
** LOCATION Srcid___ Srctyp Xs_____.__ Ys_____.__ Zs___.___
SO LOCATION #1       VOLUME     725.00     1072.0      .0000
** SRCPARAM Srcid___ QS_______ HS___.____ TS___.____ VS___.____ DS___.____
SO SRCPARAM #1       1.00000000     6.0000     1.4000     2.8000
SO LOCATION #2       VOLUME     760.00     1072.0      .0000
SO SRCPARAM #2       1.00000000     6.0000     1.4000     2.8000
SO LOCATION #3       VOLUME     740.00     1060.0      .0000
SO SRCPARAM #3       1.00000000     6.0000     1.4000     2.8000
SO LOCATION #4       VOLUME     775.00     1060.0      .0000
SO SRCPARAM #4       1.00000000     6.0000     1.4000     2.8000
SO LOCATION #5       VOLUME     755.00     1048.0      .0000
SO SRCPARAM #5       1.00000000     6.0000     1.4000     2.8000
SO LOCATION #6       VOLUME     790.00     1048.0      .0000
SO SRCPARAM #6       1.00000000     6.0000     1.4000     2.8000
SO LOCATION #7       VOLUME     770.00     1036.0      .0000
SO SRCPARAM #7       1.00000000     6.0000     1.4000     2.8000
SO LOCATION #8       VOLUME     805.00     1036.0      .0000
SO SRCPARAM #8       1.00000000     6.0000     1.4000     2.8000
SO LOCATION #9       VOLUME     785.00     1022.0      .0000
SO SRCPARAM #9       1.00000000     6.0000     1.4000     2.8000
SO LOCATION #10      VOLUME     820.00     1022.0      .0000
SO SRCPARAM #10      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #11      VOLUME     800.00     1005.0      .0000
SO SRCPARAM #11      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #12      VOLUME     835.00     1005.0      .0000
SO SRCPARAM #12      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #13      VOLUME     815.00     992.0      .0000
SO SRCPARAM #13      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #14      VOLUME     850.00     992.00      .0000
SO SRCPARAM #14      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #15      VOLUME     830.00     980.00      .0000
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SO SRCPARAM #15      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #16      VOLUME     865.00     980.00      .0000
SO SRCPARAM #16      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #17      VOLUME     845.00     968.00      .0000
SO SRCPARAM #17      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #18      VOLUME     880.00     968.00      .0000
SO SRCPARAM #18      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #19      VOLUME     860.00     954.00      .0000
SO SRCPARAM #19      1.00000000     6.0000     1.4000     2.8000
SO LOCATION #20      VOLUME     895.00     954.00      .0000
SO SRCPARAM #20      1.00000000     6.0000     1.4000     2.8000
SO EMISFACT #1-#20          HROFDY      .0000      .0000      .0000      .0000
SO EMISFACT #1-#20          HROFDY      .0000     1.0000     1.0000     1.0000
SO EMISFACT #1-#20          HROFDY     1.0000     1.0000     1.0000     1.0000
SO EMISFACT #1-#20          HROFDY     1.0000     1.0000     1.0000     1.0000
SO EMISFACT #1-#20          HROFDY     1.0000     1.0000     1.0000     1.0000
SO EMISFACT #1-#20          HROFDY      .0000      .0000      .0000      .0000
SO SETVELOC #1-#20             .000744    .006690    .015060    .022500
SO SETVELOC #1-#20             .036450    .060250    .090000    .190400
SO SETVELOC #1-#20             .297500
SO MASSFRAC #1-#20             .230000    .170000    .050000    .050000
SO MASSFRAC #1-#20             .080000    .060000    .060000    .090000
SO MASSFRAC #1-#20             .210000
SO REFLCOEF #1-#20             .000000    .000000    .000000    .000000
SO REFLCOEF #1-#20             .000000    .000000    .000000    .000000
SO REFLCOEF #1-#20             .000000
SO SRCGROUP ALL
SO FINISHED

RE STARTING
** GRIDCART Netid___ STA
RE GRIDCART near     STA
** GRIDCART Netid___ XPNTS Gridx1_.__ Gridx2_.__ Gridx3_.__ Gridx4_.__
RE GRIDCART near     XPNTS 500        550        600        650
RE GRIDCART near     XPNTS 700        750        800        850
RE GRIDCART near     XPNTS 900        950        1000
RE GRIDCART near     YPNTS 600        650        700        750
RE GRIDCART near     YPNTS 800        850        900        950
RE GRIDCART near     YPNTS 1000       1050       1100       1150
RE GRIDCART near     END
RE DISCCART             -12      -12
RE DISCCART             -12      100
RE DISCCART             -12      200
RE DISCCART             -12      300
RE DISCCART             -12      400
RE DISCCART             -12      500
RE DISCCART             -12      600
RE DISCCART             -12      700
RE DISCCART             -12      812
RE DISCCART             -100     812
RE DISCCART             -200     812
RE DISCCART             -300     812
RE DISCCART             -400     812
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RE DISCCART          -475    812
RE DISCCART          -440    900
RE DISCCART          -390    1000
RE DISCCART          -350    1100
RE DISCCART          -300    1200
RE DISCCART          -265    1300
RE DISCCART          -230    1400
RE DISCCART          -195    1500
RE DISCCART          -165    1578
RE DISCCART          -100    1578
RE DISCCART             0    1578
RE DISCCART           100    1578
RE DISCCART           200    1578
RE DISCCART           300    1578
RE DISCCART           400    1578
RE DISCCART           500    1578
RE DISCCART           600    1578
RE DISCCART           700    1578
RE DISCCART           800    1578
RE DISCCART           900    1578
RE DISCCART          1000    1578
RE DISCCART          1100    1578
RE DISCCART          1200    1578
RE DISCCART          1300    1578
RE DISCCART          1400    1578
RE DISCCART          1500    1578
RE DISCCART          1568    1578
RE DISCCART          1568    1500
RE DISCCART          1568    1400
RE DISCCART          1568    1300
RE DISCCART          1568    1200
RE DISCCART          1568    1100
RE DISCCART          1568    1000
RE DISCCART          1568    900
RE DISCCART          1568    800
RE DISCCART          1568    700
RE DISCCART          1568    600
RE DISCCART          1568    500
RE DISCCART          1568    400
RE DISCCART          1568    300
RE DISCCART          1568    200
RE DISCCART          1568    100
RE DISCCART          1568    -12.
RE DISCCART          1400    -12
RE DISCCART          1200    -12
RE DISCCART          1000    -12
RE DISCCART           800    -12
RE DISCCART           600    -12
RE DISCCART           400    -12
RE DISCCART           200    -12
** DISCPOLR Srcid___ Xdisc1_.__ Ydisc1_.__ Zelev.1___ Zflag.1___
** BOUNDARY Srcid___ Range1.__ Range2.__ Range3.__ Range4.__ Range5.__ Range6.__
RE FINISHED
```

```
ME STARTING
** INPUTFIL Metfil_____________ Metfmt_____________________________
ME INPUTFIL E:\LLAW\MET\ALEX87.BIN        UNFORM
** ANEMHGHT Zref_.___ Zrunit
ME ANEMHGHT    10.0000
** SURFDATA Srfno Ifyr Srname_____________ Surfx__.__ Surfy__.__
ME SURFDATA 74754 1987
** UAIRDATA Upno Iuyr Upname_____________ Upprx__.__ Uppry__.__
ME UAIRDATA 03951 1987
** STARTEND Strtyr Strtmn Strtdy Strthr Endyr Endmn Enddy Endhr
** DAYRANGE Arange_____________________________________________
** MODELOPT Rotan.g___
** WINDPROF St Prof1.____ Prof2.____ Prof3.____ Prof4.____ Prof5.____ Prof6.____
** DIRETADZ St Dtdz1.____ Dtdz2.____ Dtdz3.____ Dtdz4.____ Dtdz5.____ Dtdz6.____
** WINDCATS Wcat1.____ Wcat2.____ Wcat3.____ Wcat4.____ Wcat5.____
ME FINISHED

CO STARTING
** RECTABLE Aveper FIRST_ SECOND THIRD_ FOURTH FIFTH_ SIXTH_
** MAXTABLE Aveper  Maxnum
CO MAXTABLE ALLAVE      50
** DAYTABLE Avper1 Avper2 Avper3 Avper4
** MAXIFILE Aveper Grpid___ Thres.h___ Filnam_____________
** POSTFILE Aveper Grpid___ Format Filnam_____________
** PLOTFILE Aveper Grpid___ Hivalu Filnam_____________ Unit
CO PLOTFILE PERIOD ALL      E:\LLAW\LLCON87.GRF       30
** TOXXFILE Aveper Cutoff____ Filnam_____________
CO FINISHED


 BEE-Line Max-32 Version 1.2

 Input File - e:\llaw\llcon87.dta
Output File - e:\llaw\llcon87.lst
   Met File - E:\LLAW\MET\ALEX87.BIN

*********************************
*** SETUP Finishes Successfully ***
*********************************
```

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** MODEL SETUP OPTIONS SUMMARY ***

**Model Is Setup For Calculation of Average CONCentration Values.

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Use Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.
8. "Upper Bound" Values for Supersquat Buildings.
9. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 1 Short Term Average(s) of: 1-HR
and Calculates PERIOD Averages

**This Run Includes: 20 Source(s); 1 Source Group(s); and 195 Receptor(s)

**The Model Assumes A Pollutant Type of: OTHER

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of PERIOD Averages by Receptor
Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

**Input Runstream File: e:\llaw\llcon87.dta ; **Output Print File: e:\llaw\llcon87.lst
**Detailed Error/Message File: E:\LLAW\LLERR87.TXT

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
#1	9	0.10000E+01	725.0	1072.0	0.0	6.00	1.40	2.80	HROFDY
#2	9	0.10000E+01	760.0	1072.0	0.0	6.00	1.40	2.80	HROFDY
#3	9	0.10000E+01	740.0	1060.0	0.0	6.00	1.40	2.80	HROFDY
#4	9	0.10000E+01	775.0	1060.0	0.0	6.00	1.40	2.80	HROFDY
#5	9	0.10000E+01	755.0	1048.0	0.0	6.00	1.40	2.80	HROFDY
#6	9	0.10000E+01	790.0	1048.0	0.0	6.00	1.40	2.80	HROFDY
#7	9	0.10000E+01	770.0	1036.0	0.0	6.00	1.40	2.80	HROFDY
#8	9	0.10000E+01	805.0	1036.0	0.0	6.00	1.40	2.80	HROFDY
#9	9	0.10000E+01	785.0	1022.0	0.0	6.00	1.40	2.80	HROFDY
#10	9	0.10000E+01	820.0	1022.0	0.0	6.00	1.40	2.80	HROFDY
#11	9	0.10000E+01	800.0	1005.0	0.0	6.00	1.40	2.80	HROFDY
#12	9	0.10000E+01	835.0	1005.0	0.0	6.00	1.40	2.80	HROFDY
#13	9	0.10000E+01	815.0	992.0	0.0	6.00	1.40	2.80	HROFDY
#14	9	0.10000E+01	850.0	992.0	0.0	6.00	1.40	2.80	HROFDY
#15	9	0.10000E+01	830.0	980.0	0.0	6.00	1.40	2.80	HROFDY
#16	9	0.10000E+01	865.0	980.0	0.0	6.00	1.40	2.80	HROFDY
#17	9	0.10000E+01	845.0	968.0	0.0	6.00	1.40	2.80	HROFDY
#18	9	0.10000E+01	880.0	968.0	0.0	6.00	1.40	2.80	HROFDY
#19	9	0.10000E+01	860.0	954.0	0.0	6.00	1.40	2.80	HROFDY
#20	9	0.10000E+01	895.0	954.0	0.0	6.00	1.40	2.80	HROFDY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	#1 , #2 , #3 , #4 , #5 , #6 , #7 , #8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 , #20 ,

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*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE PARTICULATE DATA ***

*** SOURCE ID = #1 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #2 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #3 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE PARTICULATE DATA ***

*** SOURCE ID = #4 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #5 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #6 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE PARTICULATE DATA ***

*** SOURCE ID = #7 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #8 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #9 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

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*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE PARTICULATE DATA ***

*** SOURCE ID = #10 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #11 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #12 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE PARTICULATE DATA ***

*** SOURCE ID = #13 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #14 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #15 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** MODELING OPTIONS USED: CONC RURAL FLAT DEFAULT

*** SOURCE PARTICULATE DATA ***

*** SOURCE ID = #16 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #17 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #18 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE PARTICULATE DATA ***

*** SOURCE ID = #19 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** SOURCE ID = #20 ; SOURCE TYPE = VOLUME ***

MASS FRACTION =
0.23000, 0.17000, 0.05000, 0.05000, 0.08000, 0.06000, 0.06000, 0.09000, 0.21000,

SETTLING VELOCITY(METERS/SEC) =
0.00074, 0.00669, 0.01506, 0.02250, 0.03645, 0.06025, 0.09000, 0.19040, 0.29750,

SURFACE REFLECTION COEFFICIENT =
0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000, 0.00000,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

* SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
SOURCE ID = #1 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #2 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #3 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #4 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #5 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

* SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
SOURCE ID = #6 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #7 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #8 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #9 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #10 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

* SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
SOURCE ID = #11 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #12 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #13 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #14 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #15 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00

*** MODELING OPTIONS USED: CONC RURAL FLAT DEFAULT

* SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
SOURCE ID = #16 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #17 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #18 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #19 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00
SOURCE ID = #20 ; SOURCE TYPE = VOLUME :											
1	.00000E+00	2	.00000E+00	3	.00000E+00	4	.00000E+00	5	.00000E+00	6	.10000E+01
7	.10000E+01	8	.10000E+01	9	.10000E+01	10	.10000E+01	11	.10000E+01	12	.10000E+01
13	.10000E+01	14	.10000E+01	15	.10000E+01	16	.10000E+01	17	.10000E+01	18	.10000E+01
19	.10000E+01	20	.10000E+01	21	.00000E+00	22	.00000E+00	23	.00000E+00	24	.00000E+00

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: NEAR ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

500.0, 550.0, 600.0, 650.0, 700.0, 750.0, 800.0, 850.0, 900.0, 950.0,
1000.0,

*** Y-COORDINATES OF GRID ***
(METERS)

600.0, 650.0, 700.0, 750.0, 800.0, 850.0, 900.0, 950.0, 1000.0, 1050.0,
1100.0, 1150.0,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHAG)
(METERS)

(-12.0,	-12.0,	0.0,	0.0);	(-12.0,	100.0,	0.0,	0.0);
(-12.0,	200.0,	0.0,	0.0);	(-12.0,	300.0,	0.0,	0.0);
(-12.0,	400.0,	0.0,	0.0);	(-12.0,	500.0,	0.0,	0.0);
(-12.0,	600.0,	0.0,	0.0);	(-12.0,	700.0,	0.0,	0.0);
(-12.0,	812.0,	0.0,	0.0);	(-100.0,	812.0,	0.0,	0.0);
(-200.0,	812.0,	0.0,	0.0);	(300.0,	812.0,	0.0,	0.0);
(-400.0,	812.0,	0.0,	0.0);	(-475.0,	812.0,	0.0,	0.0);
(-440.0,	900.0,	0.0,	0.0);	(-390.0,	1000.0,	0.0,	0.0);
(-350.0,	1100.0,	0.0,	0.0);	(-300.0,	1200.0,	0.0,	0.0);
(-265.0,	1300.0,	0.0,	0.0);	(-230.0,	1400.0,	0.0,	0.0);
(-195.0,	1500.0,	0.0,	0.0);	(-165.0,	1578.0,	0.0,	0.0);
(-100.0,	1578.0,	0.0,	0.0);	(0.0,	1578.0,	0.0,	0.0);
(100.0,	1578.0,	0.0,	0.0);	(200.0,	1578.0,	0.0,	0.0);
(300.0,	1578.0,	0.0,	0.0);	(400.0,	1578.0,	0.0,	0.0);
(500.0,	1578.0,	0.0,	0.0);	(600.0,	1578.0,	0.0,	0.0);
(700.0,	1578.0,	0.0,	0.0);	(800.0,	1578.0,	0.0,	0.0);
(900.0,	1578.0,	0.0,	0.0);	(1000.0,	1578.0,	0.0,	0.0);
(1100.0,	1578.0,	0.0,	0.0);	(1200.0,	1578.0,	0.0,	0.0);
(1300.0,	1578.0,	0.0,	0.0);	(1400.0,	1578.0,	0.0,	0.0);
(1500.0,	1578.0,	0.0,	0.0);	(1568.0,	1578.0,	0.0,	0.0);
(1568.0,	1500.0,	0.0,	0.0);	(1568.0,	1400.0,	0.0,	0.0);
(1568.0,	1300.0,	0.0,	0.0);	(1568.0,	1200.0,	0.0,	0.0);
(1568.0,	1100.0,	0.0,	0.0);	(1568.0,	1000.0,	0.0,	0.0);
(1568.0,	900.0,	0.0,	0.0);	(1568.0,	800.0,	0.0,	0.0);
(1568.0,	700.0,	0.0,	0.0);	(1568.0,	600.0,	0.0,	0.0);
(1568.0,	500.0,	0.0,	0.0);	(1568.0,	400.0,	0.0,	0.0);
(1568.0,	300.0,	0.0,	0.0);	(1568.0,	200.0,	0.0,	0.0);
(1568.0,	100.0,	0.0,	0.0);	(1568.0,	-12.0,	0.0,	0.0);
(1400.0,	-12.0,	0.0,	0.0);	(1200.0,	-12.0,	0.0,	0.0);
(1000.0,	-12.0,	0.0,	0.0);	(800.0,	-12.0,	0.0,	0.0);
(600.0,	-12.0,	0.0,	0.0);	(400.0,	-12.0,	0.0,	0.0);
(200.0,	-12.0,	0.0,	0.0);				

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1 YES; 0 NO)

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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
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NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: E:\LIAN\MET\ALEX87.BIN FORMAT: UNFORM
SURFACE STATION NO.: 74754 UPPER AIR STATION NO.: 3951
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 1987 YEAR: 1987

YEAR	MONTH	DAY	HOUR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	URBAN
87	1	1	1	181.0	1.00	277.6	7	609.3	29.0
87	1	1	2	218.0	1.00	276.5	7	608.8	29.0
87	1	1	3	224.0	1.00	275.4	7	608.3	29.0
87	1	1	4	213.0	1.00	275.4	7	607.8	29.0
87	1	1	5	213.0	1.00	275.4	7	607.3	29.0
87	1	1	6	212.0	1.00	273.7	7	606.9	29.0
87	1	1	7	215.0	1.00	273.1	7	606.4	29.0
87	1	1	8	213.0	1.00	272.6	6	68.7	94.4
87	1	1	9	207.0	1.00	272.6	5	157.7	179.1
87	1	1	10	211.0	1.00	272.0	4	246.8	263.9
87	1	1	11	214.0	1.00	271.5	3	335.8	348.7
87	1	1	12	206.0	1.00	272.0	2	424.9	433.5
87	1	1	13	213.0	1.00	271.5	2	513.9	518.2
87	1	1	14	209.0	1.00	272.6	2	603.0	603.0
87	1	1	15	212.0	1.00	273.7	2	603.0	603.0
87	1	1	16	94.0	1.54	277.6	3	603.0	603.0
87	1	1	17	101.0	1.54	281.5	3	603.0	603.0
87	1	1	18	97.0	2.57	284.8	4	620.3	620.3
87	1	1	19	144.0	4.12	285.9	5	642.7	451.8
87	1	1	20	127.0	6.17	285.9	4	665.0	665.0
87	1	1	21	140.0	6.17	286.5	4	687.3	687.3
87	1	1	22	132.0	6.69	285.9	4	709.7	709.7
87	1	1	23	140.0	3.09	284.8	5	732.0	111.2
87	1	1	24	140.0	2.06	282.0	6	754.3	26.0

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 , #8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 , #20 ,

*** NETWORK ID: NEAR ; NETWORK TYPE: GRIDCART ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

Y-COORD (METERS) |	X-COORD (METERS) 500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00
1150.00	44.99641	67.57260	115.61586	193.05678	262.85657	253.52248	200.22041	149.54665	110.50128
1100.00	42.32387	60.08449	93.21716	176.23349	450.50198	622.19257	412.62341	256.73517	167.02420
1050.00	41.91363	57.62121	85.39005	144.34593	335.94046	1220.72791	1200.57019	496.05289	261.37820
1000.00	37.18944	51.38284	76.08083	124.27482	241.32689	496.14877	1230.30981	1221.76477	432.94928
950.00	34.90934	46.92189	67.30721	106.63493	172.99321	283.38327	485.89951	815.00317	778.43225
900.00	30.99100	41.90577	60.33425	88.63689	127.08257	187.29269	260.73178	325.30780	298.67877
850.00	29.65674	40.14817	55.32614	73.43626	96.19432	130.09653	156.15607	171.45021	166.94981
800.00	28.52229	37.19247	47.71788	60.00879	74.39928	92.61359	102.21405	107.02835	105.13722
750.00	26.50892	33.46069	41.22048	49.34840	57.52179	67.35344	72.40659	73.72955	70.66685
700.00	24.77378	30.04382	35.34993	40.05268	44.41817	50.68014	54.64643	55.01223	50.77060
650.00	22.88361	26.39409	29.88272	32.20076	34.72795	39.61383	43.16323	42.91393	38.48889
600.00	20.51211	22.98734	25.03864	25.86337	27.94552	31.84609	35.10574	34.52503	30.42610

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** NETWORK ID: NEAR ; NETWORK TYPE: GRIDCART ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 950.00	1000.00
1150.00	84.22034	63.78469
1100.00	114.20799	80.91780
1050.00	157.75546	103.06795
1000.00	202.48009	117.73238
950.00	235.27522	118.50762
900.00	228.11105	136.22672
850.00	136.51805	117.20541
800.00	96.57420	77.33463
750.00	71.69812	61.22960
700.00	52.12774	51.17756
650.00	38.82308	41.00994
600.00	29.69392	32.51035

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 , #8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 , #20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
12.00	-12.00	4.11848	-12.00	100.00	4.18779
12.00	200.00	4.39674	-12.00	300.00	4.40961
12.00	400.00	4.41140	-12.00	500.00	4.51435
12.00	600.00	5.19566	-12.00	700.00	5.25964
12.00	812.00	4.86564	-100.00	812.00	4.05185
200.00	812.00	3.48065	-300.00	812.00	3.04755
400.00	812.00	2.68892	-475.00	812.00	2.45881
440.00	900.00	3.02709	-390.00	1000.00	3.45680
350.00	1100.00	3.53827	-300.00	1200.00	4.06690
265.00	1300.00	4.01272	-230.00	1400.00	4.42275
195.00	1500.00	5.17414	-165.00	1578.00	6.06571
100.00	1578.00	7.37045	0.00	1578.00	10.03574
100.00	1578.00	12.64016	200.00	1578.00	14.25537
300.00	1578.00	16.56068	400.00	1578.00	20.54454
500.00	1578.00	21.08031	600.00	1578.00	19.32311
700.00	1578.00	19.28750	800.00	1578.00	18.04442
900.00	1578.00	13.99169	1000.00	1578.00	12.33300
1100.00	1578.00	11.51936	1200.00	1578.00	9.16610
1300.00	1578.00	7.07668	1400.00	1578.00	6.34951
1500.00	1578.00	5.72423	1568.00	1578.00	5.30301
1568.00	1500.00	6.01221	1568.00	1400.00	7.04951
1568.00	1300.00	7.69193	1568.00	1200.00	8.05958
1568.00	1100.00	9.21866	1568.00	1000.00	9.41108
1568.00	900.00	8.78394	1568.00	800.00	8.31530
1568.00	700.00	7.21149	1568.00	600.00	11.01009
1568.00	500.00	10.52140	1568.00	400.00	9.22107
1568.00	300.00	8.41310	1568.00	200.00	5.91836
1568.00	100.00	5.00893	1568.00	-12.00	4.62503
1400.00	-12.00	6.24976	1200.00	-12.00	5.91263
1000.00	-12.00	4.89235	800.00	-12.00	7.92830
600.00	-12.00	5.08094	400.00	-12.00	5.01511
200.00	-12.00	4.76108			

BEST COPY

*** MODELING OPTIONS USED: CONC RURAL FLAT DEFAULT

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

** CONC OF OTHER IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	36280.00000	(87120419)	AT (	900.00, 950.00)	GC	26.	21914.97460	(87030810)	AT (	900.00, 950.00)	GC
2.	35376.78910	(87011107)	AT (	900.00, 950.00)	GC	27.	21904.99220	(87052220)	AT (	900.00, 950.00)	GC
3.	35376.78910	(87100120)	AT (	900.00, 950.00)	GC	28.	21857.86910	(87092719)	AT (	750.00, 1050.00)	GC
4.	34987.03520	(87101720)	AT (	900.00, 950.00)	GC	29.	21390.23830	(87012408)	AT (	750.00, 1050.00)	GC
5.	29996.15820	(87092520)	AT (	900.00, 950.00)	GC	30.	21063.08980	(87072820)	AT (	900.00, 950.00)	GC
6.	28699.72270	(87011007)	AT (	900.00, 950.00)	GC	31.	21050.53520	(87080606)	AT (	750.00, 1050.00)	GC
7.	27971.46290	(87112819)	AT (	900.00, 950.00)	GC	32.	20818.38480	(87051219)	AT (	750.00, 1050.00)	GC
8.	26609.25390	(87102907)	AT (	750.00, 1050.00)	GC	33.	20748.54690	(87120918)	AT (	900.00, 950.00)	GC
9.	26597.13670	(87012708)	AT (	750.00, 1050.00)	GC	34.	20686.74610	(87110813)	AT (	750.00, 1050.00)	GC
10.	25379.16600	(87092208)	AT (	900.00, 950.00)	GC	35.	20455.61720	(87120709)	AT (	750.00, 1050.00)	GC
11.	24887.77340	(87122120)	AT (	900.00, 950.00)	GC	36.	20409.51370	(87120920)	AT (	900.00, 950.00)	GC
12.	24582.71880	(87040106)	AT (	750.00, 1050.00)	GC	37.	19581.01560	(87011119)	AT (	900.00, 950.00)	GC
13.	24046.50590	(87031607)	AT (	750.00, 1050.00)	GC	38.	19466.94530	(87093008)	AT (	900.00, 950.00)	GC
14.	23449.45700	(87071806)	AT (	750.00, 1050.00)	GC	39.	19271.30660	(87012817)	AT (	750.00, 1050.00)	GC
15.	23449.45700	(87091306)	AT (	750.00, 1050.00)	GC	40.	19098.42580	(87090619)	AT (	900.00, 950.00)	GC
16.	23343.42380	(87093007)	AT (	900.00, 950.00)	GC	41.	18891.48630	(87081207)	AT (	900.00, 950.00)	GC
17.	23277.87110	(87092818)	AT (	750.00, 1050.00)	GC	42.	18827.01370	(87032714)	AT (	900.00, 950.00)	GC
18.	23268.86720	(87010619)	AT (	750.00, 1050.00)	GC	43.	18827.01370	(87112009)	AT (	900.00, 950.00)	GC
19.	23207.88670	(87112609)	AT (	900.00, 950.00)	GC	44.	18662.55860	(87121818)	AT (	750.00, 1050.00)	GC
20.	22694.55470	(87082206)	AT (	750.00, 1050.00)	GC	45.	18510.38280	(87032706)	AT (	900.00, 950.00)	GC
21.	22512.53520	(87082807)	AT (	900.00, 950.00)	GC	46.	18384.50390	(87121818)	AT (	700.00, 1100.00)	GC
22.	22505.02340	(87100109)	AT (	900.00, 950.00)	GC	47.	18371.20700	(87120419)	AT (	950.00, 900.00)	GC
23.	22401.64840	(87040106)	AT (	700.00, 1100.00)	GC	48.	18358.70120	(87011007)	AT (	950.00, 900.00)	GC
24.	22052.59380	(87010620)	AT (	750.00, 1050.00)	GC	49.	18287.66020	(87011010)	AT (	900.00, 950.00)	GC
25.	21984.31250	(87071406)	AT (	750.00, 1050.00)	GC	50.	18287.66020	(87061718)	AT (	900.00, 950.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHIAG)				OF TYPE	NETWORK GRID ID
ALL	1ST HIGHEST VALUE IS	1230.30981 AT (	800.00,	1000.00,	0.00,	0.00)	GC	NEAR
	2ND HIGHEST VALUE IS	1221.76477 AT (	850.00,	1000.00,	0.00,	0.00)	GC	NEAR
	3RD HIGHEST VALUE IS	1220.72791 AT (	750.00,	1050.00,	0.00,	0.00)	GC	NEAR
	4TH HIGHEST VALUE IS	1200.57019 AT (	800.00,	1050.00,	0.00,	0.00)	GC	NEAR
	5TH HIGHEST VALUE IS	815.00317 AT (	850.00,	950.00,	0.00,	0.00)	GC	NEAR
	6TH HIGHEST VALUE IS	778.43225 AT (	900.00,	950.00,	0.00,	0.00)	GC	NEAR

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 2900 Informational Message(s)

A Total of 2900 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

ISCST2
Concentration Output Data
1988

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8784 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 , #8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 , #20 ,

*** NETWORK ID: NEAR ; NETWORK TYPE: GRIDCART ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X COORD (METERS) 500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00
1150.00	50.65525	70.23335	99.29963	153.86665	282.31769	327.98318	270.31787	201.73392	139.86490
1100.00	45.95289	65.81517	100.86963	176.79259	396.11697	715.62366	521.38409	319.76288	193.59401
1050.00	47.33372	64.90575	96.48344	166.56369	388.17770	1180.59351	1222.05920	556.84906	281.35129
1000.00	45.51256	63.28092	96.63458	158.67805	297.93991	563.15369	1214.51221	1246.29602	438.86166
950.00	46.99944	64.88120	92.30013	138.19432	218.04881	335.31070	546.22241	904.17462	732.48218
900.00	45.12359	59.95083	80.71680	115.85556	162.72015	222.39560	289.54922	327.46545	309.28076
850.00	43.45483	54.59818	72.23421	95.45208	118.89116	147.28601	166.59769	171.74046	167.62962
800.00	39.27574	48.66530	61.04394	74.76773	87.06335	102.89925	107.51722	104.32927	102.50362
750.00	34.34974	41.81898	50.37671	58.89932	66.31598	75.15384	74.02031	70.31501	68.26481
700.00	30.23955	35.82577	41.80033	47.43396	51.88465	55.90433	54.63170	51.88723	48.25491
650.00	26.76894	30.50386	35.53188	38.96775	40.46718	43.90124	42.20561	40.41516	35.80593
600.00	23.23478	26.80424	30.79343	31.51895	32.17989	33.76603	33.91604	32.60300	27.82437

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8784 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 , #8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 , #20 ,

*** NETWORK ID: NEAR ; NETWORK TYPE: GRIDCART ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 950.00	1000.00
1150.00	99.66501	72.69881
1100.00	125.49087	84.58916
1050.00	156.70366	94.23499
1000.00	179.95891	97.09401
950.00	203.82761	100.80641
900.00	211.42433	122.97199
850.00	146.91083	108.04033
800.00	99.43535	85.18232
750.00	71.23466	64.03867
700.00	51.83939	51.18297
650.00	38.18765	40.75453
600.00	28.67595	32.55837

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8784 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
12.00	-12.00	4.11535	-12.00	100.00	4.11781
12.00	200.00	4.88436	-12.00	300.00	5.99863
12.00	400.00	6.78593	12.00	500.00	7.49903
12.00	600.00	8.20900	-12.00	700.00	7.63148
12.00	812.00	6.80813	-100.00	812.00	5.60230
200.00	812.00	4.62810	300.00	812.00	3.88547
400.00	812.00	3.31809	-475.00	812.00	2.98371
440.00	900.00	3.79079	-390.00	1000.00	4.49505
350.00	1100.00	4.01348	300.00	1200.00	4.13474
265.00	1300.00	4.49523	-230.00	1400.00	5.39822
195.00	1500.00	5.98204	-165.00	1578.00	5.76706
100.00	1578.00	6.37155	0.00	1578.00	7.62863
100.00	1578.00	8.57732	200.00	1578.00	10.55326
300.00	1578.00	16.39676	400.00	1578.00	22.20663
500.00	1578.00	26.62719	600.00	1578.00	23.87692
700.00	1578.00	27.14690	800.00	1578.00	26.45250
900.00	1578.00	19.46472	1000.00	1578.00	16.28653
1100.00	1578.00	14.18235	1200.00	1578.00	12.45403
1300.00	1578.00	10.23081	1400.00	1578.00	8.42051
1500.00	1578.00	6.84165	1568.00	1578.00	6.31623
1568.00	1500.00	6.90513	1568.00	1400.00	6.96975
1568.00	1300.00	6.74209	1568.00	1200.00	6.64429
1568.00	1100.00	7.54192	1568.00	1000.00	7.08864
1568.00	900.00	6.92103	1568.00	800.00	6.14336
1568.00	700.00	7.22596	1568.00	600.00	9.54491
1568.00	500.00	9.24530	1568.00	400.00	7.87342
1568.00	300.00	7.35635	1568.00	200.00	7.15336
1568.00	100.00	5.66601	1568.00	-12.00	4.96361
1400.00	-12.00	5.78255	1200.00	-12.00	6.06944
1000.00	-12.00	4.55375	800.00	-12.00	7.82344
600.00	-12.00	5.13971	400.00	-12.00	6.71672
200.00	-12.00	5.85371			

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 , #8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 , #20 ,

** CONC OF OTHER IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)		OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)		OF TYPE
1.	32185.78130	(88112819)	AT (	900.00,	950.00)	GC	26.	20818.38480	(88052112)	AT (	750.00,	1050.00)	GC
2.	29580.78910	(88090806)	AT (	900.00,	950.00)	GC	27.	20818.38480	(88093011)	AT (	750.00,	1050.00)	GC
3.	29362.72660	(88040719)	AT (	900.00,	950.00)	GC	28.	20805.78520	(88042906)	AT (	750.00,	1050.00)	GC
4.	29327.92380	(88012508)	AT (	900.00,	950.00)	GC	29.	20686.74610	(88060306)	AT (	750.00,	1050.00)	GC
5.	27818.53320	(88090507)	AT (	900.00,	950.00)	GC	30.	20686.74610	(88091713)	AT (	750.00,	1050.00)	GC
6.	26021.25000	(88121908)	AT (	750.00,	1050.00)	GC	31.	20455.61720	(88122114)	AT (	750.00,	1050.00)	GC
7.	25478.24020	(88022819)	AT (	900.00,	950.00)	GC	32.	20375.50590	(88052117)	AT (	900.00,	950.00)	GC
8.	24928.71680	(88100120)	AT (	900.00,	950.00)	GC	33.	20348.81640	(88030909)	AT (	900.00,	950.00)	GC
9.	24928.71680	(88120208)	AT (	900.00,	950.00)	GC	34.	20348.81640	(88092608)	AT (	900.00,	950.00)	GC
10.	24113.94730	(88041319)	AT (	900.00,	950.00)	GC	35.	20110.28130	(88072920)	AT (	750.00,	1050.00)	GC
11.	23982.21480	(88102107)	AT (	900.00,	950.00)	GC	36.	19980.81840	(88071808)	AT (	750.00,	1050.00)	GC
12.	23698.08400	(88092719)	AT (	900.00,	950.00)	GC	37.	19839.59770	(88092506)	AT (	900.00,	950.00)	GC
13.	23449.45700	(88102220)	AT (	750.00,	1050.00)	GC	38.	19821.76370	(88082319)	AT (	900.00,	950.00)	GC
14.	23279.46880	(88030908)	AT (	900.00,	950.00)	GC	39.	19466.94530	(88090907)	AT (	900.00,	950.00)	GC
15.	22753.15630	(88031706)	AT (	750.00,	1050.00)	GC	40.	19407.49410	(88120810)	AT (	750.00,	1050.00)	GC
16.	22660.95310	(88081207)	AT (	750.00,	1050.00)	GC	41.	19043.49220	(88090806)	AT (	850.00,	1000.00)	GC
17.	22297.56640	(88012219)	AT (	900.00,	950.00)	GC	42.	19026.99220	(88031706)	AT (	800.00,	1000.00)	GC
18.	21984.31250	(88100907)	AT (	750.00,	1050.00)	GC	43.	18891.48630	(88012217)	AT (	900.00,	950.00)	GC
19.	21904.99220	(88051819)	AT (	900.00,	950.00)	GC	44.	18891.48630	(88082316)	AT (	900.00,	950.00)	GC
20.	21693.95510	(88121406)	AT (	700.00,	1100.00)	GC	45.	18819.09960	(88120510)	AT (	900.00,	950.00)	GC
21.	21644.18360	(88082512)	AT (	900.00,	950.00)	GC	46.	18747.33590	(88122011)	AT (	750.00,	1050.00)	GC
22.	21224.57230	(88102309)	AT (	750.00,	1050.00)	GC	47.	18689.12110	(88121908)	AT (	700.00,	1100.00)	GC
23.	21126.82230	(88011610)	AT (	750.00,	1050.00)	GC	48.	18640.14840	(88070506)	AT (	750.00,	1050.00)	GC
24.	21063.08980	(88082219)	AT (	900.00,	950.00)	GC	49.	18572.75390	(88121718)	AT (	900.00,	950.00)	GC
25.	21015.48830	(88050119)	AT (	750.00,	1050.00)	GC	50.	18572.75390	(88123116)	AT (	900.00,	950.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF MAXIMUM PERIOD (8784 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	1246.29602 AT (	850.00, 1000.00, 0.00, 0.00)	OC	NEAR
	2ND HIGHEST VALUE IS	1222.05920 AT (	800.00, 1050.00, 0.00, 0.00)	OC	NEAR
	3RD HIGHEST VALUE IS	1214.51221 AT (	800.00, 1000.00, 0.00, 0.00)	OC	NEAR
	4TH HIGHEST VALUE IS	1180.59351 AT (	750.00, 1050.00, 0.00, 0.00)	OC	NEAR
	5TH HIGHEST VALUE IS	904.17462 AT (	850.00, 950.00, 0.00, 0.00)	OC	NEAR
	6TH HIGHEST VALUE IS	732.48218 AT (	900.00, 950.00, 0.00, 0.00)	OC	NEAR

*** RECEPTOR TYPES: OC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 2125 Informational Message(s)

A Total of 2125 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

ISCST2
Concentration Output Data
1989

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** NETWORK ID: NEAR ; NETWORK TYPE: GRIDCART ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00
1150.00	52.46796	78.21439	116.53435	169.20520	272.26276	330.74930	274.77243	196.40002	127.65384
1100.00	47.75287	67.46135	106.48000	193.64168	425.95868	698.75378	494.05566	289.95065	163.95654
1050.00	44.83453	61.75105	91.48721	156.20898	365.65427	1140.51550	1023.54968	457.69107	216.95842
1000.00	39.60405	54.98263	81.94600	137.11998	277.31125	570.60217	1240.39453	1034.12891	309.70190
950.00	36.95670	50.64026	73.89580	121.33864	207.68651	339.93362	560.93152	840.24554	497.58334
900.00	34.83101	47.52001	69.12914	107.27994	160.86592	232.26411	317.68631	380.30656	292.74213
850.00	34.32781	46.30126	65.56015	92.87096	124.88197	164.69804	197.24797	203.80280	184.69739
800.00	32.82584	43.60242	59.49467	78.60902	98.19960	119.75667	128.37813	125.38503	119.54492
750.00	31.11023	40.79678	53.00114	65.97623	77.86695	88.68988	89.19056	85.13588	80.85447
700.00	29.45804	37.71479	46.67616	55.29149	61.64667	66.57080	65.65447	62.79871	58.03983
650.00	27.88813	34.40813	40.83279	45.91379	48.92881	51.17216	50.68610	48.50412	43.90674
600.00	26.27831	30.96235	35.38811	38.13494	39.00406	40.48655	40.40091	38.74199	34.61639

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 , #8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 , #20 ,

*** NETWORK ID: NEAR ; NETWORK TYPE: GRIDCART ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 950.00	1000.00
1150.00	84.27861	55.76165
1100.00	94.21652	54.42397
1050.00	103.75822	55.07640
1000.00	95.83942	47.46268
950.00	118.75066	53.43652
900.00	153.45341	88.83160
850.00	124.43822	76.38352
800.00	100.97462	65.27063
750.00	79.56068	60.37841
700.00	59.12471	54.65252
650.00	44.13575	45.72386
600.00	33.81637	36.40659

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y COORD (M)	CONC
12.00	-12.00	4.68991
12.00	200.00	5.00797
12.00	400.00	5.30909
12.00	600.00	5.74347
12.00	812.00	5.47921
200.00	812.00	3.57851
400.00	812.00	2.49676
440.00	900.00	2.95993
350.00	1100.00	4.10155
265.00	1300.00	4.74970
195.00	1500.00	6.54918
100.00	1578.00	8.14104
100.00	1578.00	9.89176
300.00	1578.00	15.32563
500.00	1578.00	27.58482
700.00	1578.00	24.23158
900.00	1578.00	21.64675
1100.00	1578.00	15.35996
1300.00	1578.00	8.48067
1500.00	1578.00	4.53941
1568.00	1500.00	4.91042
1568.00	1300.00	4.52876
1568.00	1100.00	2.71084
1568.00	900.00	3.42945
1568.00	700.00	4.25985
1568.00	500.00	7.09445
1568.00	300.00	5.10581
1568.00	100.00	4.23818
1400.00	-12.00	7.05182
1000.00	-12.00	5.79004
600.00	-12.00	6.96929
200.00	-12.00	6.95676

X-COORD (M)	Y-COORD (M)	CONC
-12.00	100.00	4.91584
-12.00	300.00	5.05996
-12.00	500.00	5.55976
-12.00	700.00	5.98501
-100.00	812.00	4.43804
-300.00	812.00	2.94179
-475.00	812.00	2.25485
-390.00	1000.00	3.58757
-300.00	1200.00	4.40017
-230.00	1400.00	5.13450
-165.00	1578.00	7.46405
0.00	1578.00	8.84842
200.00	1578.00	12.12749
400.00	1578.00	18.75933
600.00	1578.00	24.41921
800.00	1578.00	30.16355
1000.00	1578.00	16.19731
1200.00	1578.00	12.31266
1400.00	1578.00	6.00784
1568.00	1578.00	4.15252
1568.00	1400.00	5.27829
1568.00	1200.00	3.33062
1568.00	1000.00	3.80072
1568.00	800.00	2.65251
1568.00	600.00	7.15902
1568.00	400.00	5.37365
1568.00	200.00	4.73987
1568.00	-12.00	4.21095
1200.00	-12.00	6.39139
800.00	-12.00	8.79387
400.00	-12.00	7.76669

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

** CONC OF OTHER IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	29327.92380	(89092208)	AT (	900.00, 950.00)	OC	26.	19407.49410	(89111407)	AT (	750.00, 1050.00)	OC
2.	28824.02540	(89110307)	AT (	900.00, 950.00)	OC	27.	19161.41410	(89102207)	AT (	700.00, 1100.00)	OC
3.	26021.25000	(89012508)	AT (	750.00, 1050.00)	OC	28.	19120.31250	(89082507)	AT (	750.00, 1050.00)	OC
4.	24722.72460	(89041208)	AT (	900.00, 950.00)	OC	29.	19120.31250	(89111807)	AT (	750.00, 1050.00)	OC
5.	23207.88670	(89072007)	AT (	900.00, 950.00)	OC	30.	19098.42580	(89120113)	AT (	900.00, 950.00)	OC
6.	23054.06840	(89092206)	AT (	900.00, 950.00)	OC	31.	18796.83400	(89122707)	AT (	700.00, 1100.00)	OC
7.	23020.14650	(89071806)	AT (	750.00, 1050.00)	OC	32.	18689.12110	(89012508)	AT (	700.00, 1100.00)	OC
8.	22816.36330	(89082306)	AT (	750.00, 1050.00)	OC	33.	18666.75980	(89110307)	AT (	850.00, 1000.00)	OC
9.	22660.95310	(89031619)	AT (	750.00, 1050.00)	OC	34.	18662.55860	(89012408)	AT (	750.00, 1050.00)	OC
10.	22022.98630	(89042906)	AT (	750.00, 1050.00)	OC	35.	18662.55860	(89090707)	AT (	750.00, 1050.00)	OC
11.	21857.86910	(89071220)	AT (	750.00, 1050.00)	OC	36.	18640.14840	(89122618)	AT (	750.00, 1050.00)	OC
12.	21390.23830	(89121008)	AT (	750.00, 1050.00)	OC	37.	18627.72460	(89061618)	AT (	900.00, 950.00)	OC
13.	21286.17970	(89101020)	AT (	750.00, 1050.00)	OC	38.	18625.48240	(89080709)	AT (	900.00, 950.00)	OC
14.	21063.08980	(89120111)	AT (	900.00, 950.00)	OC	39.	18384.50390	(89012408)	AT (	700.00, 1100.00)	OC
15.	21063.08980	(89120114)	AT (	900.00, 950.00)	OC	40.	18384.50390	(89090707)	AT (	700.00, 1100.00)	OC
16.	21015.48830	(89011408)	AT (	750.00, 1050.00)	OC	41.	18287.66020	(89013017)	AT (	900.00, 950.00)	OC
17.	20818.38480	(89030208)	AT (	750.00, 1050.00)	OC	42.	18172.36910	(89050915)	AT (	750.00, 1050.00)	OC
18.	20674.43160	(89050420)	AT (	750.00, 1050.00)	OC	43.	18172.36910	(89081807)	AT (	750.00, 1050.00)	OC
19.	20455.61720	(89021216)	AT (	750.00, 1050.00)	OC	44.	18172.36910	(89102109)	AT (	750.00, 1050.00)	OC
20.	20455.61720	(89051408)	AT (	750.00, 1050.00)	OC	45.	18172.36910	(89111808)	AT (	750.00, 1050.00)	OC
21.	20455.61720	(89120709)	AT (	750.00, 1050.00)	OC	46.	18086.92380	(89082306)	AT (	800.00, 1000.00)	OC
22.	19839.59770	(89091606)	AT (	900.00, 950.00)	OC	47.	17891.74800	(89110310)	AT (	900.00, 950.00)	OC
23.	19839.59770	(89120920)	AT (	900.00, 950.00)	OC	48.	17598.36910	(89021116)	AT (	750.00, 1050.00)	OC
24.	19821.76370	(89060920)	AT (	900.00, 950.00)	OC	49.	17422.86330	(89121006)	AT (	700.00, 1100.00)	OC
25.	19407.49410	(89010219)	AT (	750.00, 1050.00)	OC	50.	17413.46880	(89042118)	AT (	900.00, 950.00)	OC

*** RECEPTOR TYPES: OC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	1240.39453 AT (	800.00,	1000.00,	0.00,	0.00)	GC	NEAR
	2ND HIGHEST VALUE IS	1140.51550 AT (	750.00,	1050.00,	0.00,	0.00)	GC	NEAR
	3RD HIGHEST VALUE IS	1034.12891 AT (	850.00,	1000.00,	0.00,	0.00)	GC	NEAR
	4TH HIGHEST VALUE IS	1023.54968 AT (	800.00,	1050.00,	0.00,	0.00)	GC	NEAR
	5TH HIGHEST VALUE IS	840.24554 AT (	850.00,	950.00,	0.00,	0.00)	GC	NEAR
	6TH HIGHEST VALUE IS	698.75378 AT (	750.00,	1100.00,	0.00,	0.00)	GC	NEAR

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

Summary of Total Messages ---------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 2067 Informational Message(s)

A Total of 2067 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

ISCST2
Concentration Output Data
1990

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** NETWORK ID: NEAR ; NETWORK TYPE: GRIDCART ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X COORD (METERS) 500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00
1150.00	47.15613	83.29704	152.08958	219.11237	299.91656	343.71390	264.69717	176.66223	107.23934
1100.00	34.00703	50.85443	89.25754	201.27972	510.52640	721.42590	480.85043	268.69708	141.53397
1050.00	35.27856	47.49669	69.31408	118.75454	278.51254	1145.59265	1078.40845	464.87598	205.78130
1000.00	30.90036	41.62231	60.41316	92.37316	178.52003	444.28604	1199.18384	1057.63672	306.58231
950.00	26.78002	35.68072	47.41790	73.10262	131.75404	257.04263	445.54721	710.54370	452.67001
900.00	22.44100	27.80027	38.56818	61.98619	101.04511	173.08508	253.92725	334.62442	261.08566
850.00	19.51329	25.23094	36.67828	54.18744	78.39128	124.82857	170.27458	192.26378	161.36777
800.00	17.62741	23.39715	32.74329	45.03553	63.59971	97.15411	119.71058	123.95528	102.72831
750.00	15.83250	21.31358	29.22906	39.35397	54.09006	76.00290	88.39916	88.33007	70.14809
700.00	14.63608	20.01541	27.18897	35.01947	45.31549	59.59431	68.53028	67.88779	51.70079
650.00	14.40383	19.53636	25.25579	30.44056	37.51719	47.70289	54.99569	54.17650	40.44865
600.00	14.57998	18.73265	22.85340	26.05639	31.08569	39.02785	45.32470	44.41708	33.08128

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 , #8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 , #20 ,

*** NETWORK ID: NEAR ; NETWORK TYPE: GRIDCART ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 950.00	1000.00
1150.00	66.44727	46.43263
1100.00	79.85846	50.69039
1050.00	102.56910	61.14391
1000.00	110.19613	62.12699
950.00	116.87724	58.14634
900.00	121.83518	65.83363
850.00	104.87856	61.37164
800.00	83.79163	55.40854
750.00	63.42511	51.61244
700.00	45.72151	45.39402
650.00	33.53341	36.34481
600.00	25.77505	27.63381

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC
12.00	-12.00	2.46945
12.00	200.00	2.02389
12.00	400.00	2.44427
12.00	600.00	4.11282
12.00	812.00	3.44496
200.00	812.00	2.39325
400.00	812.00	1.81707
440.00	900.00	2.45042
350.00	1100.00	3.64944
265.00	1300.00	2.98306
195.00	1500.00	6.28104
100.00	1578.00	10.60739
100.00	1578.00	14.25956
300.00	1578.00	17.49823
500.00	1578.00	26.74638
700.00	1578.00	28.08662
900.00	1578.00	22.37103
1100.00	1578.00	10.41270
1300.00	1578.00	6.73256
1500.00	1578.00	3.65304
1568.00	1500.00	3.96610
1568.00	1300.00	4.48168
1568.00	1100.00	4.65782
1568.00	900.00	4.99836
1568.00	700.00	3.17997
1568.00	500.00	5.75981
1568.00	300.00	3.57314
1568.00	100.00	3.81051
1400.00	-12.00	5.78277
1000.00	-12.00	5.71357
600.00	-12.00	5.56196
200.00	-12.00	4.43532
-12.00	100.00	2.24763
-12.00	300.00	1.92648
-12.00	500.00	3.44223
-12.00	700.00	3.97598
-100.00	812.00	2.84909
-300.00	812.00	2.05948
-475.00	812.00	1.67790
-390.00	1000.00	3.43839
-300.00	1200.00	3.00114
-230.00	1400.00	4.03906
-165.00	1578.00	9.00144
0.00	1578.00	13.50770
200.00	1578.00	14.79385
400.00	1578.00	22.04226
600.00	1578.00	26.62037
800.00	1578.00	29.82979
1000.00	1578.00	12.92984
1200.00	1578.00	9.18190
1400.00	1578.00	4.60497
1568.00	1578.00	3.39069
1568.00	1400.00	4.76662
1568.00	1200.00	3.35828
1568.00	1000.00	5.84868
1568.00	800.00	2.61479
1568.00	600.00	4.41431
1568.00	400.00	4.43013
1568.00	200.00	4.13043
1568.00	12.00	3.51269
1200.00	-12.00	4.47441
800.00	-12.00	11.01739
400.00	-12.00	5.38082

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*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

** CONC OF OTHER IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	27834.74020	(90111219)	AT (	900.00, 950.00)	GC	26.	20110.28130	(90042508)	AT (	750.00, 1050.00)	GC
2.	25478.24020	(90082120)	AT (	900.00, 950.00)	GC	27.	20110.28130	(90053111)	AT (	750.00, 1050.00)	GC
3.	24887.77340	(90012014)	AT (	900.00, 950.00)	GC	28.	19821.76370	(90082419)	AT (	900.00, 950.00)	GC
4.	24887.77340	(90082119)	AT (	900.00, 950.00)	GC	29.	19681.12110	(90040120)	AT (	750.00, 1050.00)	GC
5.	24046.50590	(90112106)	AT (	750.00, 1050.00)	GC	30.	19466.94530	(90080507)	AT (	900.00, 950.00)	GC
6.	23875.16020	(90060406)	AT (	750.00, 1050.00)	GC	31.	19430.79490	(90122507)	AT (	750.00, 1050.00)	GC
7.	23343.42380	(90061906)	AT (	900.00, 950.00)	GC	32.	19120.31250	(90082320)	AT (	750.00, 1050.00)	GC
8.	23279.46880	(90082019)	AT (	900.00, 950.00)	GC	33.	19120.31250	(90091620)	AT (	750.00, 1050.00)	GC
9.	23268.86720	(90042507)	AT (	750.00, 1050.00)	GC	34.	18822.50590	(90011211)	AT (	900.00, 950.00)	GC
10.	22844.82030	(90081119)	AT (	900.00, 950.00)	GC	35.	18798.05860	(90100619)	AT (	800.00, 1000.00)	GC
11.	22694.55470	(90111606)	AT (	750.00, 1050.00)	GC	36.	18798.05860	(90102107)	AT (	800.00, 1000.00)	GC
12.	22688.53520	(90122520)	AT (	750.00, 1050.00)	GC	37.	18796.83400	(90100306)	AT (	700.00, 1100.00)	GC
13.	22531.36720	(90100619)	AT (	750.00, 1050.00)	GC	38.	18747.33590	(90030211)	AT (	750.00, 1050.00)	GC
14.	22531.36720	(90102107)	AT (	750.00, 1050.00)	GC	39.	18627.72460	(90120816)	AT (	900.00, 950.00)	GC
15.	22238.24410	(90042719)	AT (	900.00, 950.00)	GC	40.	18625.48240	(90010415)	AT (	900.00, 950.00)	GC
16.	22022.98630	(90030508)	AT (	750.00, 1050.00)	GC	41.	18595.71680	(90120818)	AT (	900.00, 950.00)	GC
17.	21984.31250	(90041406)	AT (	750.00, 1050.00)	GC	42.	18534.34570	(90011409)	AT (	750.00, 1050.00)	GC
18.	21857.86910	(90090120)	AT (	750.00, 1050.00)	GC	43.	18356.60740	(90090620)	AT (	700.00, 1100.00)	GC
19.	21857.86910	(90091106)	AT (	750.00, 1050.00)	GC	44.	18318.30860	(90120817)	AT (	900.00, 950.00)	GC
20.	21394.14060	(90032320)	AT (	750.00, 1050.00)	GC	45.	18287.66020	(90082318)	AT (	900.00, 950.00)	GC
21.	21224.57230	(90072920)	AT (	750.00, 1050.00)	GC	46.	18287.66020	(90100417)	AT (	900.00, 950.00)	GC
22.	21063.08980	(90072808)	AT (	900.00, 950.00)	GC	47.	18287.66020	(90111216)	AT (	900.00, 950.00)	GC
23.	21015.48830	(90012410)	AT (	750.00, 1050.00)	GC	48.	18172.36910	(90040907)	AT (	750.00, 1050.00)	GC
24.	20686.74610	(90070408)	AT (	750.00, 1050.00)	GC	49.	18139.26760	(90111007)	AT (	900.00, 950.00)	GC
25.	20455.61720	(90091619)	AT (	750.00, 1050.00)	GC	50.	18031.51170	(90102719)	AT (	750.00, 1050.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHLAG)				OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	1199.18384 AT (	800.00,	1000.00,	0.00,	0.00)	GC	NEAR
	2ND HIGHEST VALUE IS	1145.59265 AT (	750.00,	1050.00,	0.00,	0.00)	GC	NEAR
	3RD HIGHEST VALUE IS	1078.40845 AT (	800.00,	1050.00,	0.00,	0.00)	GC	NEAR
	4TH HIGHEST VALUE IS	1057.63672 AT (	850.00,	1000.00,	0.00,	0.00)	GC	NEAR
	5TH HIGHEST VALUE IS	721.42590 AT (	750.00,	1100.00,	0.00,	0.00)	GC	NEAR
	6TH HIGHEST VALUE IS	710.54370 AT (	850.00,	950.00,	0.00,	0.00)	GC	NEAR

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 3065 Informational Message(s)

A Total of 3065 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

ISCST2
Concentration Output Data
1991

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 , #8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 , #20 ,

*** NETWORK ID: NFAR ; NETWORK TYPE: GRIDCART ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00
1150.00	77.17533	126.22386	189.61552	226.55804	271.55652	252.95209	153.07358	92.97692	60.46521
1100.00	55.41190	82.89743	144.31444	291.40686	561.50391	590.28278	317.97330	153.42268	83.18071
1050.00	52.61812	72.03945	107.09807	186.09819	443.37494	1329.03259	841.38568	281.13614	120.79554
1000.00	46.33864	64.43253	99.04681	158.74701	280.55792	590.45129	1333.47986	757.36951	192.09808
950.00	44.45641	61.95919	85.50189	124.41843	195.47226	337.19315	540.07672	783.31866	346.28024
900.00	42.56570	54.50301	71.84162	102.68587	146.51634	225.01575	296.95172	337.73703	240.19559
850.00	39.70975	49.29206	65.08290	84.45171	106.37898	149.52710	183.77769	195.14142	149.28663
800.00	35.74656	43.32700	53.55481	63.51320	78.37517	108.94385	126.19868	127.66330	97.82418
750.00	30.00199	36.03418	42.94126	50.09635	62.03967	82.75392	92.52944	91.59412	68.86809
700.00	25.48166	30.68659	35.90236	41.24532	50.20037	63.48425	71.96438	70.48414	51.66692
650.00	22.79738	26.85242	30.69788	34.60168	40.24436	50.29985	58.20403	56.32800	40.64285
600.00	20.67982	23.67304	26.77832	28.56647	32.58079	41.14254	48.33527	46.32458	33.23943

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 ,
#8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 ,
#20 ,

*** NETWORK ID: NEAR ; NETWORK TYPE: GRIDCART ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X COORD (METERS) 950.00	1000.00
1150.00	43.29723	31.39838
1100.00	52.36956	35.08575
1050.00	67.49484	42.65319
1000.00	74.03372	39.38211
950.00	83.14950	39.45134
900.00	100.27531	55.23812
850.00	92.47022	50.98866
800.00	73.50914	50.42931
750.00	55.97451	45.28719
700.00	42.41599	38.08658
650.00	32.56158	31.56442
600.00	25.59458	25.70884

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1 , #2 , #3 , #4 , #5 , #6 , #7 , #8 , #9 , #10 , #11 , #12 , #13 , #14 , #15 , #16 , #17 , #18 , #19 , #20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y COORD (M)	CONC
12.00	-12.00	3.59268	-12.00	100.00	3.57838
12.00	200.00	4.03356	-12.00	300.00	4.71464
12.00	400.00	5.70352	-12.00	500.00	7.24742
12.00	600.00	8.42616	-12.00	700.00	7.40121
12.00	812.00	5.75262	-100.00	812.00	4.73468
200.00	812.00	3.94932	-300.00	812.00	3.34555
400.00	812.00	2.88945	-475.00	812.00	2.61935
440.00	900.00	3.27862	-390.00	1000.00	4.69030
350.00	1100.00	5.42636	-300.00	1200.00	4.84602
265.00	1300.00	5.27193	-230.00	1400.00	6.63671
195.00	1500.00	11.24266	-165.00	1578.00	12.86874
100.00	1578.00	13.68887	0.00	1578.00	14.62294
100.00	1578.00	15.35398	200.00	1578.00	15.98127
300.00	1578.00	15.10934	400.00	1578.00	20.38006
500.00	1578.00	26.70184	600.00	1578.00	21.35310
700.00	1578.00	15.55764	800.00	1578.00	14.64405
900.00	1578.00	8.70573	1000.00	1578.00	6.21314
1100.00	1578.00	6.17123	1200.00	1578.00	4.90103
1300.00	1578.00	3.26112	1400.00	1578.00	2.51736
1500.00	1578.00	2.48716	1568.00	1578.00	2.72967
1568.00	1500.00	3.71768	1568.00	1400.00	4.23725
1568.00	1300.00	3.24707	1568.00	1200.00	2.39354
1568.00	1100.00	2.92684	1568.00	1000.00	3.49976
1568.00	900.00	2.52777	1568.00	800.00	2.30818
1568.00	700.00	2.51194	1568.00	600.00	4.50073
1568.00	500.00	4.47968	1568.00	400.00	3.77116
1568.00	300.00	3.16953	1568.00	200.00	3.86474
1568.00	100.00	3.76766	1568.00	-12.00	3.48969
1400.00	-12.00	4.40000	1200.00	-12.00	4.75587
1000.00	-12.00	5.16125	800.00	12.00	12.05999
600.00	-12.00	5.63699	400.00	-12.00	5.48135
200.00	12.00	5.72473			

BEST COPY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): #1, #2, #3, #4, #5, #6, #7, #8, #9, #10, #11, #12, #13, #14, #15, #16, #17, #18, #19, #20,

** CONC OF OTHER IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	29233.50780	(91071320)	AT (	900.00, 950.00)	OC	26.	21016.37110	(91081006)	AT (	750.00, 1050.00)	OC
2.	26609.25390	(91102520)	AT (	750.00, 1050.00)	OC	27.	20818.38480	(91042815)	AT (	750.00, 1050.00)	OC
3.	26021.25000	(91120520)	AT (	750.00, 1050.00)	OC	28.	20818.38480	(91081519)	AT (	750.00, 1050.00)	OC
4.	24685.60740	(91121019)	AT (	750.00, 1050.00)	OC	29.	20686.74610	(91050408)	AT (	750.00, 1050.00)	OC
5.	24113.94730	(91020610)	AT (	900.00, 950.00)	OC	30.	20686.74610	(91121312)	AT (	750.00, 1050.00)	OC
6.	23696.81840	(91053006)	AT (	700.00, 1100.00)	OC	31.	20618.81640	(91053006)	AT (	750.00, 1050.00)	OC
7.	23458.82030	(91102307)	AT (	750.00, 1050.00)	OC	32.	20455.61720	(91083115)	AT (	750.00, 1050.00)	OC
8.	23268.86720	(91061207)	AT (	750.00, 1050.00)	OC	33.	20455.61720	(91120711)	AT (	750.00, 1050.00)	OC
9.	23207.88670	(91060308)	AT (	900.00, 950.00)	OC	34.	20110.28130	(91012315)	AT (	750.00, 1050.00)	OC
10.	23020.14650	(91090520)	AT (	750.00, 1050.00)	OC	35.	20110.28130	(91040719)	AT (	750.00, 1050.00)	OC
11.	22974.82810	(91100920)	AT (	750.00, 1050.00)	OC	36.	20110.28130	(91061208)	AT (	750.00, 1050.00)	OC
12.	22901.15820	(91040307)	AT (	750.00, 1050.00)	OC	37.	20054.40430	(91102318)	AT (	750.00, 1050.00)	OC
13.	22753.15630	(91102506)	AT (	750.00, 1050.00)	OC	38.	19980.81840	(91012907)	AT (	750.00, 1050.00)	OC
14.	21914.97460	(91081019)	AT (	900.00, 950.00)	OC	39.	19980.81840	(91051010)	AT (	750.00, 1050.00)	OC
15.	21914.97460	(91081318)	AT (	900.00, 950.00)	OC	40.	19980.81840	(91061112)	AT (	750.00, 1050.00)	OC
16.	21489.69730	(91121407)	AT (	900.00, 950.00)	OC	41.	19335.80660	(91020817)	AT (	900.00, 950.00)	OC
17.	21380.97270	(91090715)	AT (	750.00, 1050.00)	OC	42.	19271.30660	(91102511)	AT (	750.00, 1050.00)	OC
18.	21126.82230	(91021706)	AT (	750.00, 1050.00)	OC	43.	19136.17190	(91070319)	AT (	900.00, 950.00)	OC
19.	21126.82230	(91060120)	AT (	750.00, 1050.00)	OC	44.	19026.99220	(91102506)	AT (	800.00, 1000.00)	OC
20.	21063.08980	(91020519)	AT (	900.00, 950.00)	OC	45.	18857.05080	(91010420)	AT (	750.00, 1050.00)	OC
21.	21050.53520	(91090212)	AT (	750.00, 1050.00)	OC	46.	18747.33590	(91012320)	AT (	750.00, 1050.00)	OC
22.	21050.53520	(91102310)	AT (	750.00, 1050.00)	OC	47.	18747.33590	(91021708)	AT (	750.00, 1050.00)	OC
23.	21050.53520	(91111708)	AT (	750.00, 1050.00)	OC	48.	18747.33590	(91090113)	AT (	750.00, 1050.00)	OC
24.	21016.37110	(91061110)	AT (	750.00, 1050.00)	OC	49.	18747.33590	(91090308)	AT (	750.00, 1050.00)	OC
25.	21016.37110	(91061920)	AT (	750.00, 1050.00)	OC	50.	18747.33590	(91090711)	AT (	750.00, 1050.00)	OC

*** RECEPTOR TYPES: OC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

Appendix 2
Metals Toxicity Profiles

ALUMINUM

Aluminum is the third most abundant element in the earth's crust and is ubiquitous in the air, water, and soil. In addition to aluminum's widespread occurrence in silicate minerals, aluminum is found in enormous deposits of bauxite, the chief source of aluminum. Aluminum is a light, soft metal that resists corrosion by forming a tough, adherent protective layer of Al_2O_3 (corundum).

Above-average levels of exposure are usually associated with one or more of the following situations:

- Manufacturing of aluminum products, such as fireworks, ceramics, paints, electrical goods and abrasives, often releases aluminum dust which consists of aluminum metal and a small amount of Al_2O_3 (corundum). Thus, workers and nearby residents may be exposed to elevated levels of aluminum;
- Manufacturing (smelting) of metals often releases Al_2O_3 into the air. Thus, workers in metal smelters and nearby residents may be exposed to elevated levels of aluminum; and
- Patients on long-term intermittent hemodialysis treatment for chronic renal failure may be exposed to high levels of aluminum hydroxide commonly given to these patients or from aluminum in dialysis fluid.

Exposure to aluminum via the ingestion and inhalation pathways can affect the gastrointestinal, pulmonary, and neurological systems.

Aluminum compounds can affect absorption of other elements in the gastrointestinal tract and alter intestinal function. For example, aluminum inhibits fluoride absorption and may decrease the absorption of calcium and iron compounds and cholesterol.

Acute effects that result from the inhalation of elevated levels of aluminum and aluminum abrasives include coughing, shortness of breath, and alveolar edema. Chronic effects include interstitial fibrosis, fibrotic thickening of alveolar walls, and emphysema. For example, near continuous inhalation of aluminum in the form bauxite (Al_2O_3-$3H_2O$) fume results in pulmonary fibrosis which produces both restrictive and obstructive pulmonary disease.

Elevated aluminum exposures may cause neurological disorders. For example, intracerebral injection of aluminum phosphate or injection of aluminum powder in cerebrospinal fluid of animals has been noted to induce a progressive encephalopathy and neurofibrillary degeneration. In

addition, a progressive fatal neurologic syndrome reported in patients on long-term dialysis treatment may result from aluminum intoxication.

Aluminum is not presently included in the IRIS database and the HEAST document (March 1993) indicates that insufficient data exist to develop an oral or inhalation RfD for aluminum.

ANTIMONY

Antimony is a silver-white, lustrous metal that is often contained in numerous alloys to prevent corrosion and fracturing. Antimony is a common air pollutant from industrial emissions, but exposure for the general population is largely from food. However, very little data are available regarding the toxicity of antimony.

Most information about antimony toxicity has been obtained from industrial experiences where above-average exposures to antimony can occur. Antimony is included in alloys in the metals industry and is used for producing fireproofing chemicals, ceramics, glassware, and pigments. Occupational exposures are usually by inhalation of dust containing antimony compounds, antimony penta and trichloride, trioxide and trisulfide.

Nearby residents of incinerators may also be exposed to antimony in the atmosphere. In urban areas, municipal incineration may be the primary source of the metal in the atmosphere.

Acute effects of elevated antimony exposure via inhalation include rhinitis and acute pulmonary edema. Chronic exposures by inhalation of antimony and antimony compounds results in rhinitis, pharyngitis, tracheitis, bronchitis, and eventually pneumoconiosis with obstructive lung disease and emphysema. Antimony has been observed to collect in the lung tissue.

Antimony was historically used medicinally as an antiparasitic agent. Accidental poisonings can result in acute toxicity, which produces severe gastrointestinal symptoms including vomiting and diarrhea.

According to the USEPA, no data are available to evaluate the carcinogenicity of antimony. An oral RfD has been developed based on a dietary study with rats where the NOEL was estimated to be 0.35 mg/kg-day. Using an uncertainty factor (UF) of 1000 based on interspecies differences, EPA calculated an oral RfD of 0.0004 mg/kg-day. No data exist to develop an inhalation RfD.

BARIUM

Barium is relatively abundant in nature and is found in plants and animal tissue. Barium appears silvery white when freshly cut, but tarnishes readily in air as a result of the formation of barium oxide on the surface.

Exposure to barium may be associated with one or more of the following situations:

- Barium is used in various alloys, paints, soap, paper, rubber, and in the manufacture of ceramics and glass. Thus, workers in these industries and nearby residents may be exposed to elevated levels of barium;
- Barium fluorosilicate and carbonate have been used as insecticides. Thus, occupational and residential exposure may occur through manufacturing and application of the insecticides;
- Natural mineral deposits in some geographic areas contain barium, thereby resulting in elevated levels of barium in water. If this water is used for drinking, exposure may result; and
- Barium sulfate, an insoluble compound, is used as a radiopaque aid to x-ray diagnosis.

The toxicity of barium compounds depends on their solubility. The soluble compounds of barium are absorbed, and small amounts can accumulate in the skeleton.

The primary concern regarding elevated exposures to barium is hypertension. Occupational health studies have linked elevated barium exposures with an increase in the incidence of hypertension. Benign pneumoconiosis (baritosis) may result from inhalation of barium sulfate dust and barium carbonate. Ingestion of soluble barium salts has resulted in gastroenteritis, muscular paralysis, decreased pulse rate, and ventricular fibrillation and extrasystoles. Potassium deficiency occurs in acute poisoning from barium exposure. The digitalis-like toxicity, muscle stimulation, and central nervous system effects from above average exposures to barium have been confirmed by experimental investigation.

A ten week epidemiological study of human drinking water exposures and cardiovascular effects provides the basis for the oral RfD calculated by the EPA. The NOAEL from this study was 0.21 mg/kg/day. The critical health effect in this study was increased blood pressure. Using an uncertainty factor of 3, EPA calculated an oral RfD of 0.07 mg/kg/day. A four month study of rats and fetal rats intermittently exposed to barium via inhalation was used to develop an inhalation RfD. The NOEL from this study was 0.8 mg/m^3. The critical health effect was fetotoxicity.

Using an uncertainty factor of 1000, EPA calculated an RfC of 5.00E-04 mg/m^3.

BERYLLIUM

Pure beryllium is a hard grayish metal. Two kinds of mineral rocks, bertrandite and beryl, are mined commercially for the recovery of beryllium. Beryllium is also present in a variety of compounds.

Most of the beryllium ore that is mined is converted into metal alloys. Most of these alloys are used in the electronics field or in structural applications. For example, beryllium metal and metal alloys may be found in consumer products such as electronic devices (televisions, calculators, and personal computers) and special non-sparking tools. Pure beryllium metal has applications in the manufacturing of nuclear weapons and reactors, aircraft-satellite-space vehicle structures and instruments, x-ray transmission windows, and mirrors. Beryllium oxide is also manufactured from beryllium ores and is used to make specialty ceramics for electrical and high-technology applications.

All humans are exposed to low levels of beryllium through the air, food, water, and soil pathways. Because beryllium occurs as an impurity in coal and fuel oils, beryllium is released into the air as a result of the burning of these fuels.

Above-average levels of exposure are usually associated with one or more of the following situations:

- The greatest exposures to beryllium, mostly in the form of beryllium oxide, occur in the workplace. Occupational exposure to beryllium occurs at places where the metal is mined, processed, and converted into metal, alloys, and chemicals. Workers engaged in machining metals containing beryllium, in reclaiming beryllium from scrap alloys, or in using beryllium products will also be exposed. In addition, people who live near these industries can also be exposed;
- The combustion of coal and oil contributes about 1250 or more tons of beryllium to the environment each year (mostly from coal). Thus, exposure can result from the combustion of coal and/or oil; and
- Beryllium occurs naturally in various tobaccos and is inhaled during smoking. People who smoke cigarettes may breathe more beryllium than people who do not smoke.

Animal studies have shown that only small amounts of beryllium enter the body after ingestion or after contact with the skin, although physical contact with the skin can cause irritation. These studies have also

suggested that beryllium enters the body most effectively through inhalation of beryllium particles suspended in the air.

Not all of the effects that beryllium may have on human health are well understood, and not all beryllium compounds are equally toxic. The lung is the primary organ that beryllium affects. Acute human and animal exposure via inhalation to high levels of beryllium leads to the development of inflammation or reddening and swelling of the lungs, severe pulmonary edema, and pneumonia. Removal from exposure results in a reversal of symptoms. Chronic exposure through inhalation to beryllium at much lower levels has been reported to cause berylliosis (noncancerous growths in the lung of humans), pulmonary fibrosis, progressive dyspnea, interstitial granulomatosis, corpulmonale. Both the short-term effects and berylliosis can be fatal, depending on the severity of exposure.

Dermal exposure also produces toxic effects. Contact dermatitis is the most common beryllium-related toxic effect. Exposure to soluble beryllium compounds may result in a delayed allergic reaction in the form of papulovesicular lesions on the skin. If contact is made with an insoluble beryllium compound, a chronic granulomatous lesion develops, which may be necrotizing or ulcerative.

Beryllium is classified as a Class B2 carcinogen; this classification indicates that while sufficient evidence of carcinogenicity in animals exists, no conclusive evidence exists for carcinogenicity in humans. An epidemiological study of rat drinking water exposures provides the basis for the oral RfD calculated by the EPA. The NOAEL from this study was 0.54 mg/kg/day. No critical health effect was observed in this study. Using an uncertainty factor of 100, EPA calculated an oral RfD of 5.00E-03 mg/kg/day. No data exist to develop an inhalation RfD for beryllium. An inhalation CSF of 8.4 $(mg/kg/day)^{-1}$ was calculated based on studies of humans occupationally exposed to beryllium via the inhalation pathway. Cancerous tumors resulted in the lungs of subjects as a result of exposure. Because of the apparent carcinogenic risk from inhalation exposure to beryllium and the limited data on the potential carcinogenicity of beryllium by oral exposure, beryllium is assumed to pose a carcinogenic risk from ingestion, and the oral CSF is listed as 4.3 $(mg/kg/day)^{-1}$.

CHROMIUM

Chromium is a blue-white to steel-gray, lustrous metal that is abundant in the earth's crust. Chromium occurs in oxidation states ranging from Cr^{2+} to Cr^{6+}, but only the trivalent (Cr^{3+}) and hexavalent (Cr^{6+}) are of biologic significance. Trivalent chromium is considered to be an essential nutrient which helps to maintain normal glucose, cholesterol, and fat metabolism.

Signs of chromium deficiency in humans include weight loss and impairment of glucose tolerance. The minimum daily requirement of chromium for optimal health is not known, but a daily ingestion of 20-500 µg per day has been estimated to be safe and adequate. While the trivalent form is more common and beneficial to human health, the hexavalent forms of chromate compounds are of greater industrial importance and human health concern.

Exposure to above-average levels of chromium typically occurs through occupational exposure. Occupational sources of exposure mainly occur in the following industries: stainless steel welding, chromate production, chrome plating, ferrochrome alloys, chrome pigments, cement production, and leather tanning. However, residential exposure can occur when chromium is released into the air through industries such as ferrochrome production, ore refining, chemical and refractory processing, cement production, and combustion of fossil fuels. Nearly all workers and near-by residents are exposed to both trivalent and hexavalent chromium compounds. However, at present no information exists with regard to a gradient of risk from predominant exposure to hexavalent or insoluble forms of chromium versus exposure to soluble trivalent forms.

Acute effects of inhalation exposure to chromium include nasal irritation and bronchitis. Chronic inhalation exposure of workers to low levels of chromium compounds has been associated with lung cancer, lung tumors, and pulmonary fibrosis. Inhalation exposure to chromium may result in additional adverse effects on the respiratory system and may affect some components of the immune system. Although which form of chromium is responsible for these effects in workers remains unclear, only hexavalent chromium has been found to cause cancer in animal studies.

The major acute effect from ingested chromium is acute renal tubular necrosis. While a few chronic oral studies in which animals were exposed to low levels of chromium compounds have shown no adverse health effects, not enough evidence exists to conclusively determine the long-term effects of oral exposure to chromium.

Little skin absorption information is available. The most common effect of skin exposure to chromium is chronic ulceration of the skin. Allergic chromium skin reactions readily occur with exposure and are independent of dose. However, the exposures that result in an allergic reaction have not been adequately quantified.

Hexavalent chromium is classified as a Class A carcinogen because this form of chromium has been linked in epidemiological studies to various cancers in human populations exposed via the inhalation route. An oral RfD for soluble forms of hexavalent chromium has been developed by the USEPA based on a study of potassium chromate exposures in Sprague-Dawley rats. The oral RfD developed by the USEPA is 5.00E-03

mg/kg/day. An inhalation RfC is pending. An inhalation CSF of 41 $(mg/kg/day)^{-1}$ has been developed based on humans occupationally exposed to Cr^{6+} via the inhalation route; this study showed that tumors result in the lungs with inhalation exposure.

COPPER

Copper is a reddish, lustrous metal that is widely distributed in nature, but deposits of the free metal are very rare. Copper generally occurs as various sulfides. Copper has a variety of uses, such as electrical conductor, pigment, insecticide, fungicide, rodenticide, mosquito controller, alloy component, and medical treatment. Copper exposure is mainly occupational, although residential exposure may occur through the metal's use as an insecticide, fungicide, rodenticide, or mosquito controller.

Very little health effects information is available regarding the toxicity of copper. Inhalation of copper dusts, mists, or fumes may cause an irritation of the nasal mucous membrane, metal fume fever, or chills. Dermal exposure to copper in animals has caused anemia and damage to the lungs, liver, and kidneys. However, no severe effects have been observed in humans as a result of dermal exposure; dermal effects include an irritation of the eyes and upper respiratory tract, a metallic taste, discoloration of the skin and hair, muscle aches, nausea, fever, and influenza symptoms.

Copper is classified as a Class D carcinogen because the metal cannot be classified as a human carcinogen based on the available data. No data exist for the calculation of an oral or inhalation RfD. However, based on the current drinking water standard of 1.3 mg/L an oral RfD can be estimated at 0.0371 mg/kg/day, assuming a 70 kg person drinks 2 liters per day. This RfD value is close to the National Academy of Sciences recommended daily intake of copper (0.042 mg/kg/day for a 70 kg person). Thus, a high level of uncertainty exists in the estimated RfD.

LEAD

Lead is a relatively rare metal in the earth's crust, but lead is also the most ubiquitous toxic metal. Lead is detectable in practically all phases of the inert environment and in all biologic systems. No biologic need for lead has been demonstrated, and the metal is toxic to most living things at high exposures. The total daily intake of lead for an adult in the United States varies from less than 0.1 mg/day to more than 2 mg/day. Food and beverages are the major source of daily intake of lead in adults and children. Lead content of food is extremely variable, but practically no

lead-free items exist. Nearly all environmental exposure to lead is to inorganic compounds, even lead in food.

While the principal route of exposure is through food, environmental sources of lead typically produce excess exposure and toxic effects. Above average exposures to lead are usually associated with one or more of the following situations:

- Approximately 65% of all of the lead produced is used for the manufacture of storage batteries. Thus, workers in this industry and other industries (at one time, paints) which involve lead may become occupationally exposed. In addition, workers may bring lead dust home on their clothes and shoes. Near-by residents may also be exposed;
- Lead may be released into the air from the combustion of lead-containing auto exhausts or industrial emissions. Concentrations of lead in the air may vary widely and may be lower than 1.0 μg/m3 in rural areas to 10 μg/m3 in certain urban areas. For the contemporary urbanite, the magnitude of respired lead is about one-half the intake from the diet;
- Exposure may also occur through lead-based indoor paint in older dwellings; and
- Drinking water may contain lead; thus, ingestion of drinking water with high concentrations of lead may lead to above-average exposures.

The central nervous system effects of lead are the most significant in terms of human health and performance. Manifestations of central nervous system effects are acute or chronic encephalopathy and/or peripheral neuropathy. Symptomatic encephalopathy is almost always a disease of childhood and varies from ataxia to stupor, coma, and convulsions. As supported by brain wave patterns and central nervous system evoked potential responses in children displaying neuropsychologic defects, even low-level lead exposures does affect central nervous system function. Peripheral neuropathy is a classic manifestation of lead toxicity, in particular the footdrop and wristdrop that characterized the house painter and other workers with excessive occupational exposure to lead more than a half-century ago.

Lead has multiple hematologic effects. For example, the anemia that occurs in lead poisoning results from two basic defects: shortened red blood cell life-span and impairment of heme synthesis.

Two areas of concern characterize the toxicological effects of lead on the kidney: reversible renal tubular dysfunction that occurs mostly in children with acute exposure to lead and irreversible chronic interstitial

nephropathy characterized by vascular sclerosis. The relationship between lead and hypertension is uncertain: hypertension has been associated with lead poisoning in a few studies, but not all studies. Hypertension may follow the vascular changes associated with lead-induced chronic renal disease.

Severe lead toxicity has long been known to cause sterility, abortion, and neonatal mortality and morbidity. However, the impact of levels of lead exposure occurring in today's society on reproductive effects is uncertain.

Evidence of lead's carcinogenicity is very limited. However, lead has induced cancer in kidneys of rodents fed high doses of lead. Thus, further research is needed to determine if lead has a carcinogenic effect in humans.

Lead is classified as a Class B2 carcinogen because the metal is a probable human carcinogen based on animal exposure studies. Because of the current level of uncertainty regarding the carcinogenic potency of lead and various lead compounds, the USEPA has not developed a cancer potency factor for lead at this time. The EPA also has not developed either an inhalation or oral RfD for inorganic lead. However, a preliminary inhalation RfD could be developed based on the present National Ambient Air Quality Standard of 1.5 $\mu g/m^3$:

$$RfD = (1.5\ \mu g/m^3\ /\ 70\ kg) * (1\ mg\ /\ 1000\ \mu g) * 20\ m^3/day$$

$$= 4.29E\text{-}04\ mg/kg/day$$

MERCURY

Mercury, at one time known as quicksilver, is the only metal that exists in the liquid state at 25°C. The major source of mercury is the natural degassing of the earth's crust; this source accounts for approximately 25,000 - 150,000 tons per year. Despite the fact that mining, smelting, and industrial discharge have been factors in environmental contamination in the past, nonanthropogenic factors have been the chief source of mercury in the environment. Three forms of mercury exist: metallic, organic, and inorganic.

The typical daily mercury exposure of the general population is estimated to be approximately 1 µg/day from the air, <2 µg/day from water, and about 20 µg/day from food depending on the amount of fish consumed. Exposure to above average levels of mercury may result from occupational exposure. Occupational exposure to mercury can occur in any of the following industries: manufacturing of fungicides, calomel

electrodes, wood and anatomical preservatives, embalming, photography, paints, pigments, and batteries. Nearby residents to these industries may also become exposed to above-average levels of mercury. In the last century mercury compounds were used in the production of felt for hats which resulted in the felt workers suffering from a nervous disorder called "hatter's shakes;" thus, the phrase "mad as a hatter" originated from exposure to high levels of mercury.

All forms of mercury can easily enter the body if vapor forms are inhaled. Inorganic and organic mercury can also enter the body through ingestion, but smaller intakes of the metal result from this pathway. Mercury may also directly enter the body through the skin. Once the metal has entered the body, months may pass until all of the mercury has been eliminated through excretion.

Inhalation of inorganic mercury vapor may produce an acute, corrosive bronchitis and interstitial pneumonitis, central nervous system effects such as tremor or increased excitability, or fatality. Chronic exposure to mercury vapor predominantly affects the central nervous system. Effects include tremors, personality and behavior changes, excitability, delirium, and gingivitis. The triad of increased excitability, tremors, and gingivitis has been recognized historically as the major manifestation of mercury poisoning from inhalation of mercury vapor and exposure in the fur, felt, and hat industry to mercury nitrate.

Ingestion of mercuric chloride or other mercuric salts (inorganic mercury) typically results in corrosive ulceration, bleeding, necrosis of the gastrointestinal tract, kidney damage, shock and circulatory collapse. The toxic signs of organic mercury compounds show differences from inorganic mercurials; this discrepancy may result from a greater penetration of organic mercury compounds in to the brain. For example, based on studies of epidemics caused by the accidental industrial release of organic mercury and mercury compounds and the subsequent ingestion of these mercury compounds through the food chain, the main pathologic features of organic mercury toxicity include central nervous system degeneration, such as degeneration and necrosis of neurons in focal areas of the cerebral cortex, and central nervous system degeneration of a developing fetus.

Brief exposure to high levels of inorganic and organic mercury will have similar health effects as chronic exposure. However, full recovery is more likely following acute exposure after the body has removed the mercury contamination.

Dermal contact with mercurous compounds may result in a hypersensitivity response in skin, such as vasodilation, hyperkeratosis and

hypersecretion of sweat glands. Children may develop fever, rash, swelling of the spleen and lymph nodes, and hyperkeratosis and swelling of fingers.

Mercury is classified as a Class D carcinogen because mercury cannot be classified as a human carcinogen based on the available data. EPA developed an oral RfD of 3.00E-04 mg/kg/day based on epidemiological studies of rats orally exposed to inorganic mercury. Oral exposure resulted in kidney damage. EPA also developed an inhalation RfD of 8.57E-05 mg/kg/day based on the neurotoxicity which developed in humans exposed to inorganic mercury via the inhalation pathway.

NICKEL

Nickel is a silvery metal that takes a high polish, which is protected by a spontaneously formed transparent layer of the oxide NiO. Nickel occurs in a variety of sulfide ores, and pure nickel is obtained by roasting the ore to obtain NiO and then reducing with hydrogen and carbon.

Evidence has accumulated over the past few years indicating that nickel is a nutritionally essential trace metal. However, high levels of exposure to nickel can cause adverse effects and fatalities. Above-average levels of exposure are usually associated with one or more of the following situations:

- Occupational exposure to nickel has occurred in several industries: nickel ore extraction, nickel smelting, electronic electroplating, fossil fuel industries, steel production, and municipal incineration. Job-related exposure occurs through dermal contact or by inhalation of aerosols, dusts, fumes or mists containing nickel. Nearby residents of these industries may also be exposed via inhalation, dermal contact, and/or ingestion of contaminated soil or vegetation;
- Tobacco contains nickel; thus, nickel is inhaled during smoking. People who smoke cigarettes may inhale more nickel than people who do not smoke.
- Medical patients may be exposed through contaminated drugs, intravenous fluids, and leaching and corrosion of artificial body parts made from alloys which contain nickel; and
- Exposure can also occur through contact with common metal products, such as stainless steel, coins and jewelry.

Nickel is a respiratory tract carcinogen in people involved in the nickel refining industry. Specifically, occupational exposure to nickel may result in lung cancer, nasal cancer, laryngeal cancer, gastric carcinoma, and soft tissue carcinomas. However, nickel refining dusts contain a number of

different nickel compounds including nickel oxide, sulfate, and subsulfide forms and trace amounts of other metal contaminants. Evidence is lacking with regard to which of the various nickel compounds associated with nickel refining dusts are the most important in causing adverse health effects.

Other serious consequences of long-term exposure to nickel are not apparent, but severe acute and sometimes fatal toxicity may follow nickel carbonyl exposure. The reaction between metallic nickel and carbon monoxide to form nickel carbonyl ($Ni[CO]_4$) provides a convenient and efficient method for the refinement of nickel. However, nickel carbonyl is extremely toxic, and many cases of acute toxicity have been reported. The illness begins with headache, nausea, vomiting, chest pain, followed by cough, hyperpnea, cyanosis, gastrointestinal symptoms, and weakness. The symptoms may be accompanied by fever and leukocytosis, and the more severe cases progress to pneumonia, respiratory failure, and eventually cerebral edema and death.

Allergic contact dermatitis is common among persons in the general population. Sensitization might occur from any of the numerous metal products in common use, such as coins and jewelry, or through occupational exposure. Evidence also suggests that increased ingestion of nickel-containing food increases the probability of external sensitization to nickel.

Nickel is classified as a Class A carcinogen because epidemiological studies have linked nickel exposure of human populations to various cancers. The toxicity of nickel is a function of its chemical form. USEPA has developed an oral RfD for a soluble nickel compound, $NiSO_4$, based on two-year dietary exposures in rats. The calculated oral RfD of 2.00E-02 mg/kg/day was based on the NOAEL of 100 ppm and an uncertainty factor of 300. Nickel emissions from most combustion sources are likely to be in the insoluble oxide form. Thus, utilization of an RfD based on soluble nickel compounds will probably overestimate health effects from exposure to nickel oxides, but no data exist to calculate an oral or inhalation RfD for nickel refinery dust, nickel oxide, or nickel subsulfide. Carcinogenic slope factors of 8.4E-01 $(mg/kg/day)^{-1}$ for nickel refinery dust and 1.68 $(mg/kg/day)^{-1}$ for nickel subsulfide were developed based on humans occupational exposed via the inhalation pathway; tumors in the respiratory system were a result of these exposures.

SELENIUM

Selenium occurs as an amorphous or crystalline, red to gray solid. Selenium is found in the rare minerals crooksite and clausthalite and also as an impurity in most sulfide ores. The availability and toxic potential for

selenium and selenium compounds are related to chemical form and solubility. Selenium occurs in nature and biologic systems as selenate (Se^{+6}), selenite (Se^{+4}), elemental selenium (Se), and selenide (Se^{-2}).

Selenium is found in many natural water bodies. River water levels of selenium vary depending on environmental and geologic factors; specifically, selenium concentrations in natural waters depend largely on the occurrence of seleniferous soils. A representative concentration of selenium in rivers has been reported as 0.02 ppm.

Selenium has been shown to be an essential element in mammals. Seafood, meat, milk products, and grains provide the largest sources of selenium in the human diet. Selenium deficiency leads to a cardiomyopathy in mammals, including humans. However, above-average exposure to selenium and selenium compounds can cause toxic effects. Above-average exposure typically occurs through occupational exposure or through residing near these industries. Selenium is used in the glass, ceramic, enamel, lubricating oil, and shampoo industries. Selenium is also produced in the electrolytic refining of impure copper metal obtained from copper sulfide ores. In addition, selenium is a by-product from lead, zinc, phosphate and uranium mining and processing and burning of fuels.

Acute selenium poisoning produces central nervous system effects, which include nervousness, drowsiness, and sometimes convulsions. Symptoms of chronic inhalation exposure may include pallor, coated tongue, gastrointestinal disorders, nervousness, "garlic" breath, liver and spleen damage, anemia, mucosal irritation, and lumbar pain.

Epidemiologic investigations have indicated a decrease in human cancer death rates correlated with increasing selenium content of forage crops. In addition to an apparent protective effect against some carcinogenic agents, selenium is an antidote to the toxic effects of other metals, such as arsenic, cadmium, mercury, copper, and thallium.

Selenium is classified as a Class D carcinogen because selenium cannot be classified as a human carcinogen based on the available data. The EPA has developed an oral RfD of 0.005 mg/kg-day. Previously, an oral RfD of 0.003 mg/kg-day was promulgated based on human exposures to selenious acid; however, according to the National Academy of Sciences the recommended safe and adequate dietary intake of selenium for a 70 kg adult is about 0.0029 mg/kg-day. No data exist for development of an inhalation RfD.

ZINC

Zinc is a shiny, white metal with a bluish gray luster. The principal ores of zinc include sphalerite (ZnS) and smithsonite ($ZnCO_3$).

Zinc is ubiquitous in the environment; the metal is present in most foodstuffs, water, and air. In particular, seafood, meats, whole grains, dairy products, nuts, and legumes are high in zinc content. Zinc content of food and water may be increased by contact with galvanized copper or plastic pipes. The average American daily intake of zinc is approximately 12 to 15 mg. Zinc levels in the atmosphere typically tend to increase in industrial areas.

Zinc is a nutritionally essential metal, and deficiency results in severe health consequences. On the other hand, excessive exposure to zinc is relatively uncommon and requires heavy exposure. Zinc toxicity from excessive ingestion is uncommon, but gastrointestinal distress and diarrhea have been reported following ingestion of beverages standing in galvanized cans or from use of galvanized utensils.

Industrial exposure to zinc results in the most toxic effects. Occupational exposure could result from the following industries: zinc refining, pigments and paints, rubber manufacturing, antiseptics, disinfectants, cements, and tire manufacturing.

Inhalation of zinc fumes can produce metal fume fever. Other aspects of zinc toxicity are not well established. Experimental animals have been given 100 times dietary requirements without discernible effects.

Zinc is classified as a Class D carcinogen because the metal cannot be classified as a human carcinogen based on the available data. The EPA has developed an oral RfD for zinc of 0.3 mg/kg-day. Previously, an oral RfD of 0.2 mg/kg-day was promulgated by the EPA, but normal dietary zinc requirement is virtually identical to the latter RfD. No data exist for the development of an inhalation RfD.

Appendix 3
Wildlife Species List
Grant Parish, Louisiana

Table A3-1 Wildlife of Grant Parish

Common Name	Scientific Name	Federal Status	Associated with Pine-Hardwood Forest
Amphibians			
Spotted salamander	*Ambystoma maculatum*		Y
Marbled salamander	*Ambystoma opacum*		Y
Mole salamander	*Ambystoma talpoideum*		Y
Smallmouth salamander	*Ambystoma texanum*		Y
Three-toed amphiuma	*Amphiuma tridactylum*		
Dusky salamander	*Desmognathus fuscus*		Y
Dwarf salamander	*Eurycea quadridigitata*		Y
Slimy salamander	*Plethodon glutinosus*		
Mudpuppy	*Necturus maculosus*		
Central newt	*Notophthalmus viridescens*		Y
Lesser siren	*Siren intermedia*		Y
Woodhouse's toad	*Bufo woodhousii*		Y
Gulf Coast Toad	*Bufo valliceps*		Y*
Northern cricket frog	*Acris crepitans*		Y
Bird-voiced treefrog	*Hyla avivoca*		
Cope's gray treefrog	*Hyla chrysoscelis*		
Green treefrog	*Hyla cinerea*		Y
Spring Peeper	*Hyla crucifer*		Y*
Squirrel treefrog	*Hyla squirella*		Y
Gray treefrog	*Hyla versicolor*		Y
Striped chorus frog	*Pseudacris triseriata*		Y
Eastern narrowmouth toad	*Gastrophryne carolinensis*		Y
Eastern spadefoot	*Scaphiopus holbrookii*		Y
Crawfish frog	*Rana areolata*		
Bullfrog	*Rana catesbeiana*		
Green frog	*Rana clamitans*		Y
Southern leopard frog	*Rana sphenocephala*		Y
Reptiles			
Snapping turtle	*Chelydra serpentina*		Y
Alligator snapping turtle	*Macroclemys temminckii*	C2	
Painted turtle	*Chrysemys picta*		

Table A3-1 Wildlife of Grant Parish (Continued)

Common Name	Scientific Name	Federal Status	Associated with Pine-Hardwood Forest
Eastern box turtle	*Terrapene carolina*		Y
Slider	*Trachemys scripta*		
Eastern mud turtle	*Kinosternon subrubrum*		Y
Razorback musk turtle	*Sternotherus carinatus*		
Common musk turtle or stinkpot	*Sternotherus odoratus*		Y
Spiny softshell	*Apalone spinifera*		
American alligator	*Alligator mississippiensis*	T/SA	
Slender glass lizard	*Opinisaurus attenuatus*		Y
Green anole	*Anolis carolinensis*		Y
Eastern fence lizard	*Sceloporus undulatus*		Y
Coal skink	*Eumeces anthracinus*		Y
Five-lined skink	*Eumeces fasciatus*		Y
Broadhead skink	*Eumeces laticeps*		Y
Ground skink	*Scincella lateralis*		Y
Six-lined racerunner	*Cnemidophorus sexlineatus*		Y
Racer	*Coluber constrictor*		Y
Ringneck snake	*Diadophis punctatus*		Y
Corn snake	*Elaphe guttata*		Y
Rat snake	*Elaphe obsoleta*		Y
Scarlet snake	*Cemophora coccinea*		Y*
Mud snake	*Farancia abacura*		
Eastern hognose snake	*Heterodon platirhinos*		Y
Prairie kingsnake	*Lampropeltis calligaster*		Y*
Common kingsnake	*Lampropeltis getula*		Y
Milk snake	*Lampropeltis triangulum*		Y
Coachwhip	*Masticophis flagellum*		Y
Green water snake	*Nerodia cyclopion*		
Plainbelly water snake	*Nerodia erythrogaster*		
Southern water snake	*Nerodia fasciata*		
Diamondback water snake	*Nerodia rhombifer*		
Rough green snake	*Opheodrys aestiws*		Y
Pine snake	*Pituophis melanoleucus*		Y
Glossy crayfish snake	*Regina rigida*		

Table A3-1 Wildlife of Grant Parish (Continued)

Common Name	Scientific Name	Federal Status	Associated with Pine-Hardwood Forest
Graham's Crayfish Snake	*Regina grahami*		Y*
Northern brown snake	*Storeria dekayi*		Y
Redbelly snake	*Storeria occipitomaculata*		Y
Flathead snake	*Tantilla gracilis*		Y
Common garter snake	*Thamnophis sirtalis*		Y
Rough earth snake	*Virginia striatula*		Y
Eastern coral snake	*Micrurus fulvius*		Y
Copperhead	*Agkistrodon contortrix*		Y
Cottonmouth	*Agkistrodon piscivorus*		Y
Canebrake rattlesnake	*Crotalus horridus*		Y
Pigmy rattlesnake	*Sistrurus miliarius*		Y
<u>Fish</u>			
Chestnut lamprey	*Ichthyomyzon castaneus*		
Southern brook lamprey	*Ichthyomyzon gagei*		
Spotted gar	*Lepisosteus oculatus*		
Longnose gar	*Lepisosteus osseus*		
Shortnose gar	*Lepisosteus platostomus*		
Alligator gar	*Lepisosteus spatula*		
Bowfin	*Amia calva*		
American eel	*Anguilla rostrata*		
Gizzard shad	*Dorosoma cepedianum*		
Threadfin shad	*Dorosoma petenense*		
Redfin pickerel	*Esox americanus*		
Chain pickerel	*Esox niger*		
Cypress minnow	*Hybognathus hayi*		
Mississippi silvery minnow	*Hybognathus nuchalis*		
Golden shiner	*Notemigonus crysoleucas*		
Pallid shiner	*Notropis amnis*		
Emerald shiner	*Notropis atherinoides*		
Ironcolor shiner	*Notropis chalybaeus*		
Sabine shiner	*Notropis sabinae*		
Weed shiner	*Notropis texanus*		

Table A3-1 Wildlife of Grant Parish (Continued)

Common Name	Scientific Name	Federal Status	Associated with Pine-Hardwood Forest
Mimic shiner	*Notropis volucellus*		
Creek chub	*Semotilus atromaculatus*		
Blacktail shiner	*Cyprinella venusta*		
Striped shiner	*Luxilus chrysocephalus*		
Ribbon shiner	*Lythrurus fumeus*		
Redfin shiner	*Lythrurus umbratilis*		
Pugnose minnow	*Opsopoeodus emiliae*		
River carpsucker	*Carpiodes carpio*		
Creek chubsucker	*Erimyzon oblongus*		
Lake chubsucker	*Erimyzon sucetta*		
Smailmouth buffalo	*Ictiobus bubalus*		
Bigmouth buffalo	*Ictiobus cyprinellus*		
Black buffalo	*Ictiobus niger*		
Spotted sucker	*Minytrema melanops*		
Blacktail redhorse	*Moxostoma poecilurum*		
Channel catfish	*Ictalurus punctatus*		
Tadpole madtom	*Noturus gyrinus*		
Brindled madtom	*Noturus miurus*		
Freckled madtom	*Noturus nocturnus*		
Brown madtom	*Noturus phaeus*		
Flathead catfish	*Pylodictis olivaris*		
Black bullhead	*Ameiurus melas*		
Yellow bullhead	*Ameiurus natalis*		
Pirate perch	*Aphredoderus sayanus*		
Golden topminnow	*Fundulus chrysotus*		
Blackstripe topminnow	*Fundulus notatus*		
Blackspotted topminnow	*Fundulus olivaceus*		
Mosquitofish	*Gambusia affinis*		
Brook silverside	*Labidesthes sicculus*		
Inland silverside	*Menidia beryllina*		
White bass	*Morone chrysops*		
Flier	*Centrarchus macropterus*		
Banded pygmy sunfish	*Elassoma zonatum*		

Table A3-1 Wildlife of Grant Parish (Continued)

Common Name	Scientific Name	Federal Status	Associated with Pine-Hardwood Forest
Green sunfish	*Lepomis cyanellus*		
Warmouth	*Lepomis gulosus*		
Orangespotted sunfish	*Lepomis humilis*		
Bluegill	*Lepomis macrochirus*		
Dollar sunfish	*Lepomis marginatus*		
Longear sunfish	*Lepomis megalotis*		
Redear sunfish	*Lepomis microlophus*		
Spotted sunfish	*Lepomis punctatus*		
Bantam sunfish	*Lepomis symmetricus*		
Spotted bass	*Micropterus punctulatus*		
Largemouth bass	*Micropterus salmoides*		
White crappie	*Pomoxis annularis*		
Black crappie	*Pomoxis nigromaculatus*		
Scaly sand darter	*Ammocrypta vivax*		
Bluntnose darter	*Etheostoma chlorosomum*		
Creole darter	*Etheostoma collettei*		
Slough darter	*Etheostoma gracile*		
Harlequin darter	*Etheostoma histrio*		
Cypress darter	*Etheostoma proeliare*		
Speckled darter	*Etheostoma stigmaeum*		
Redfin darter	*Etheostoma whipplei*		
Logperch	*Percina caprodes*		
Blackside darter	*Percina maculata*		
Saddleback darter	*Percina ouachitae*		
Dusky darter	*Percina sciera*		
Freshwater drum	*Aplodinotus grunniens*		
Eastern pipistrelle	*Pipistrellus subflavus*		
<u>Birds</u>			
Great egret	*Casmerodius albus*		
Little blue heron	*Egretta caerulea*		Y**
Cattle egret	*Bubulcus ibis*		Y
Green-backed heron	*Butorides striatus*		Y**

Table A3-1 Wildlife of Grant Parish (Continued)

Common Name	Scientific Name	Federal Status	Associated with Pine-Hardwood Forest
Yellow-crowned night-heron	*Nyctanassa violacea*		Y**
Greater white-fronted goose	*Anser albifrons*		Y**
Snow goose	*Chen caerulescens*		Y**
Wood duck	*Aix sponsa*		Y**
Black vulture	*Coragyps atratus*		Y
Turkey vulture	*Cathartes aura*		Y
Mississippi kite	*Ictinia mississippiensis*		Y**
Sharp-shinned hawk	*Accipiter striatus*		Y
Cooper's hawk	*Accipiter cooperii*		Y**
Red-shouldered hawk	*Buteo lineatus*		Y
Broad-winged hawk	*Buteo platypterus*		Y
Red-tailed hawk	*Buteo jamaicensis*		Y
American kestrel	*Falco sparverius*		Y**
Wild turkey	*Meleagris gallopavo*		Y**
Northern bobwhite	*Colinus virginianus*		Y
Common snipe	*Gallinago gallinago*		
American woodcock	*Scolopax minor*		Y
Mourning dove	*Zenaida macroura*		Y
Yellow-billed cuckoo	*Coccyzus americanus*		Y
Eastern screech-owl	*Otus asio*		Y**
Great horned owl	*Bubo virginianus*		Y**
Barred owl	*Strix varia*		Y
Common nighthawk	*Chordeiles minor*		
Chuck-will's-widow	*Caprimulgus carolinensis*		Y
Chimney swift	*Chaetura pelagica*		Y**
Ruby-throated hummingbird	*Archilochus colubris*		Y
Red-headed woodpecker	*Melanerpes erythrocephalus*		Y
Red-bellied woodpecker	*Melanerpes carolinus*		Y
Yellow-bellied sapsucker	*Sphyrapicus varius*		Y
Downy woodpecker	*Picoides pubescens*		Y
Hairy woodpecker	*Picoides villosus*		Y
Red-cockaded woodpecker	*Picoides borealis*	LE	
Northern flicker	*Colaptes auratus*		Y

Table A3-1 Wildlife of Grant Parish (Continued)

Common Name	Scientific Name	Federal Status	Associated with Pine-Hardwood Forest
Pileated woodpecker	*Dryocopus pileatus*		Y
Eastern wood-pewee	*Contopus virens*		Y
Acadian flycatcher	*Empidonax virescens*		Y
Eastern phoebe	*Sayornis phoebe*		Y
Great crested flycatcher	*Myiarchus crinitus*		Y
Eastern kingbird	*Tyrannus tyrannus*		Y**
Purple martin	*Progne subis*		
Blue jay	*Cyanocitta cristata*		Y
American crow	*Corvus brachyrhynchos*		Y
Fish crow	*Corvus ossifragus*		Y
Carolina chickadee	*Parus carolinensis*		Y
Tufted titmouse	*Parus bicolor*		Y
Red-breasted nuthatch	*Sitta canadensis*		Y
Brown-headed nuthatch	*Sitta pusilla*		Y
Brown creeper	*Certhia americana*		Y
House wren	*Troglodytes aedon*		Y**
Winter wren	*Troglodytes troglodytes*		Y**
Carolina wren	*Troglodytes ludovicianus*		Y*
Golden-crowned kinglet	*Regulus satrapa*		Y
Ruby-crowned kinglet	*Regulus calendula*		Y
Blue-gray gnatcatcher	*Polioptila caerulea*		Y
Eastern bluebird	*Sialia sialis*		Y**
Hermit thrush	*Catharus guttatus*		Y
Wood thrush	*Hylocichla mustelina*		Y
American robin	*Turdus migratorius*		Y
Gray catbird	*Dumetella carolinensis*		Y
Northern mockingbird	*Mimus polyglottos*		Y
Brown thrasher	*Toxostoma rufum*		Y
Cedar waxwing	*Bombycilla cedrorum*		Y
Loggerhead shrike	*Lanius ludovicianus*	C2	Y**
White-eyed vireo	*Vireo griseus*		Y
Solitary vireo	*Vireo solitarius*		Y**
Yellow-throated vireo	*Vireo flavifrons*		Y

Table A3-1 Wildlife of Grant Parish (Continued)

Common Name	Scientific Name	Federal Status	Associated with Pine-Hardwood Forest
Red-eyed vireo	*Vireo olivaceus*		Y
Tennessee warbler	*Vermivora peregrina*		
Orange-crowned warbler	*Vermivora celata*		Y
Northern parula	*Parula americana*		Y**
Yellow-rumped warbler	*Dendroica coronata*		Y
Pine warbler	*Dendroica pinus*		Y
Prairie warbler	*Dendroica discolor*		Y
Black-and-white warbler	*Mniotilta varia*		Y
Prothonotary warbler	*Protonotaria citrea*		Y**
Worm-eating warbler	*Helmitheros vermivorus*		Y
Swainson's warbler	*Limnothlypis swainsonii*		Y**
Kentucky warbler	*Oporornis formosus*		Y
Common yellowthroat	*Geothlypis trichas*		Y
Hooded warbler	*Wilsonia citrina*		Y
Yellow-breasted chat	*Icteria virens*		Y
Summer tanager	*Piranga rubra*		Y
Scarlet tanager	*Piranga olivacea*		Y**
Northern cardinal	*Cardinalis cardinalis*		Y
Blue grosbeak	*Guiraca caerulea*		Y**
Indigo bunting	*Passerina cyanea*		Y
Painted bunting	*Passerina ciris*		Y**
Dickcissel	*Spiza americana*		
Rufous-sided towhee	*Pipilo erythrophthalmus*		Y
Bachman's sparrow	*Aimophila aestivalis*	C2	Y
American tree sparrow	*Spizella arborea*		
White-throated sparrow	*Zonotrichia albicollis*		Y*
Chipping sparrow	*Spizella passerina*		Y
Field sparrow	*Spizella pusilla*		Y
Lark sparrow	*Chondestes grammacus*		Y**
Fox sparrow	*Passerella iliaca*		Y
Song sparrow	*Melospiza melodia*		Y
Swamp sparrow	*Melospiza georgiana*		Y**
White-crowned sparrow	*Zonotrichia leucophrys*		Y

Table A3-1 Wildlife of Grant Parish (Continued)

Common Name	Scientific Name	Federal Status	Associated with Pine-Hardwood Forest
Dark-eyed junco	*Junco hyemalis*		Y
Red-winged blackbird	*Agelaius phoeniceus*		Y**
Eastern meadowlark	*Sturnella magna*		
Common grackle	*Quiscalus quiscula*		Y
Brown-headed cowbird	*Molothrus ater*		Y
Orchard oriole	*Icterus spurius*		Y
Northern oriole	*Icterus galbula*		Y**
Purple finch	*Carpodacus purpureus*		Y**
American goldfinch	*Carduelis tristis*		Y
House sparrow	*Passer domesticus*		
Mammals			
Opossum	*Didelphis virginiana*		Y*
Southeastern bat	*Mytois austroriparius*		Y*
Eastern pipistrelle	*Pipistrellus subflavus*		Y*
Big brown bat	*Eptesicus fuscus*		Y*
Eastern red bat	*Lasiurus borealis*		Y
Seminole bat	*Lasiurus seminolus*		Y
Hoary bat	*Lasiurus cinereus*		Y*
Northern yellow bat	*Lasiurus intermedius*		Y*
Evening bat	*Nycticeius humeralis*		Y
Rafinesque's big-eared bat	*Plecotus rafinesquii*		Y*
Brazilian free-tailed bat	*Tadarida brasiliensis*		Y*
Eastern mole	*Scalopus aquaticus*		Y*
Short-tailed shrew	*Blarina brevicauda*		Y*
Least shrew	*Cryptotis parva*		Y*
Nine-banded armadillo	*Dasypus novemcinctus*		Y
Eastern cottontail	*Sylvilagus floridanus*		Y
Swamp rabbit	*Sylvilagus aquaticus*		Y
Eastern gray squirrel	*Sciurus carolinensis*		Y
Eastern fox squirrel	*Sciurus niger*		Y
Southern flying squirrel	*Glaucomys volans*		Y
Plains pocket gopher	*Geomys bursarius*		Y

Table A3-1 Wildlife of Grant Parish (Continued)

Common Name	Scientific Name	Federal Status	Associated with Pine-Hardwood Forest
Beaver	*Castor canadensis*		Y*
Marsh rice rat	*Oryzomys palustris*		Y*
Eastern harvest mouse	*Reithrodontomys humulis*		Y*
Fulvous harvest mouse	*Reithrodontomys fulvescens*		Y
White-footed mouse	*Peromyscus leucopus*		Y*
Cotton mouse	*Peromyscus gossypinus*		Y
Golden mouse	*Ochrotomys nuttalli*		Y
Hispid cotton rat	*Sigmodon hispidus*		Y
Eastern woodrat	*Neotoma floridana*		Y
Woodland vole	*Microtus pinetorum*		Y*
Black rat	*Rattus rattus*		Y*
Norway rat	*Rattus norvegicus*		Y*
House mouse	*Mus musculus*		Y*
Nutria	*Myocastor coypus*		Y*
Coyote	*Canis latrans*		Y*
Common gray fox	*Urocyon cinereoargenteus*		Y
Red fox	*Vulpes fulva*		Y*
Black bear	*Euarctos americanus*		Y*
Common raccoon	*Procyon lotor*		Y
Mink	*Mustela vison*		Y
Striped skunk	*Mephitis mephitis*		Y
Northern river otter	*Lutra canadensis*		Y
Bobcat	*Lynx rufus*		Y*
Domestic cat	*Felis catus*		Y
White-tailed deer	*Odocoileus virginianus*		Y
Pig	*Sus scrofa*		Y*

Y: Species found to be associated with the pine-hardwood forest (Loblolly-Shortleaf Pine-Hardwood Forest) according to the studies conducted on the Catahoula Ranger District.

*: Species that were not on the list of vertebrates of Grant Parish, but, were observed during studies conducted on the Catahoula Ranger District of the Kisatchie National Forest, Grant Parish.

**: Species observed less than 3 times during the study.

Federal Status:

LE: Listed Endangered
T/SA: Listed Threatened/Similiarity of appearance
C2: Candidate for listing

Table A3-2 Rare Plant Species Found in Grant Parish - November 1993

Scientific Name	Common Name	State Rank	Global Rank	Federal Status
Amsonia ludoviciana	Louisiana blue star	S3	G3	3C
Burmannia biflora	Northern burmannia	S2	G4G5	
Cypripedium kentuckiense	Southern lady's-slipper	S2	G3	C2
Heliotropium tenellum	Slender heliotrope	S2	G5	
Panicum flexile	Wiry witchgrass	S1	G3G5	
Panicum strigosum var. *leucoblepharis*	Rough-hair witchgrass	S1	G5	
Pteroglossaspis ecristata	Wild coco	S2	G3G4	C2

State Ranks:

S1: Critically imperiled, extreme rarity (5 or fewer occurrences)

S2: Imperiled, rarity (6 to 20 occurrences)

S3: Rare or uncommon (21 to 100 occurrences)

Global Ranks:

G3: Either very rare and local throughout its range or found locally in a restricted range. (21 to 100 occurrences)

G4: Apparently secure globally, though it may be quite rare in parts of its range.

G5: Demonstrably secure globally, though it may be quite rare in parts of its range.

Federal Ranks:

C2: Current information indicates that proposing to list is possible, but that substantial biological information is not on file to support such action.

3C: Taxa proven to be more abundant or widespread than previously believed, and/or those that are not subject to any identifiable threat.

APPENDIX V

SOIL MONITORING REPORT (2002)

CAMERON-COLE

2002 ANNUAL SOIL MONITORING REPORT

CLEAN HARBORS COLFAX, LLC
THERMAL TREATMENT FACILITY
3763 HIGHWAY 471
EPA FACILITY ID NO. LAD 981 055 791
AGENCY INTEREST NO. 32096

Prepared for:

Clean Harbors Colfax, LLC
Colfax, Louisiana
(318) 627-3443

Prepared by:

Cameron-Cole, LLC
515 North Sam Houston Parkway East
Suite 110
Houston, Texas 77060

February 2003

CAMERON-COLE

February 7, 2003

Mr. James H. Brent, Ph.D.
Administrator
Hazardous Waste Division - Permit Section
Louisiana Department of Environmental Quality
Post Office Box 82178
Baton Rouge, Louisiana 70884-2178

RE: 2002 Annual Soil Monitoring Report
Clean Harbors Colfax, LLC Facility - Colfax, Louisiana
EPA Facility ID No. LAD 981 055 791
Agency Interest No. 32096

Dear Dr. Brent:

Please find enclosed two (2) copies of the above referenced-report for the Clean Harbors Colfax, LLC facility (formerly Safety-Kleen (Colfax), Inc.) in Colfax, Louisiana. In September 2002, Clean Harbors Environmental Services, Inc. acquired the assets of Safety-Kleen Chemical Services Division, which included the Safety-Kleen (Colfax), Inc. facility. As a result of the new ownership, the facility name has changed to Clean Harbors Colfax, LLC.

Results for the 2002 Annual Soil Monitoring Event were consistent with previous years. Results of the 2002 Soil Monitoring Event showed no statistically significant increases in concentrations of any metal or explosive constituents. One volatile organic constituent, ethanol, showed a statistically significant increase from background concentrations. However, ethanol is a common laboratory solvent used in soil analysis and is not generally associated with the activities conducted at the facility. For these reasons, this statistical increase is likely not related to activities at the facility and no further action with respect to this increase is warranted. These results support the conclusion that soil in the area has not been adversely affected by facility operations in 2002. Copies of analytical reports and chain-of-custody documentation are on file at the Safety-Kleen Colfax facility and are available at your request. All data are summarized in the report tables.

If you have any questions or comments regarding this report, please contact Matt Hudson of Cameron-Cole at (281) 820-7603.

Sincerely,

Matthew P. Hudson, P.G.
Project Manager

Stephen J. Weishar, P.E.
Senior Manager

Enclosure
cc: Jim Gallion - Clean Harbors Colfax, LLC
John Arbuthnot - Clean Harbors Baton Rouge, LLC

2002 ANNUAL SOIL MONITORING REPORT

CLEAN HARBORS COLFAX, LLC
THERMAL TREATMENT FACILITY
3763 HIGHWAY 471
COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791
AGENCY INTEREST NO. 32096

Prepared for:

Clean Harbors Colfax, LLC
Colfax, Louisiana
(318) 627-3443

Prepared by:

Cameron-Cole, LLC
515 North Sam Houston Parkway East Suite 110
Houston, Texas 77060
(281) 820-7600

Cameron-Cole Project No. 3602
January 2003

TABLE OF CONTENTS

		Page
EXECUTIVE SUMMARY		I
1.0	INTRODUCTION	1-1
1.1	Purpose and Objective	1-1
1.2	Site Description	1-1
1.3	Surface Geology	1-1
1.4	Sampling Summary	1-2
2.0	DATA EVALUATION AND RESULTS	2-1
2.1	Soil Analytical Results	2-1
2.2	Statistical Analyses	2-2
2.3	Laboratory Quality Assurance/Quality Control Procedures	2-3
3.0	CONCLUSIONS	3-1
4.0	REFERENCES	4-1

TABLES

	Table
Soil Analytical Data, Metal Constituents	1
Soil Analytical Data, Volatile Organic Compounds	2
Soil Analytical Data, Extractable Explosive Constituents	3
Statistical Analysis of Metal Constituents	4
Statistical Analysis of Volatile Organic Constituents	5

APPENDICES

	Appendix
Field Soil Sampling Report and Notes	A
Historical Soil Analytical Data	B
Cochran's Approximation to the Behrens-Fisher Students' T-Test	C
Laboratory Case Narrative	D

EXECUTIVE SUMMARY

Clean Harbors Colfax, LLC facility (formerly Safety-Kleen (Colfax), Inc.) in Colfax, Louisiana conducts the thermal destruction of explosive and reactive wastes under a Resource Conservation Recovery Act (RCRA) Subpart X Permit. Annual soil monitoring to detect and document statistically significant increases in metals, volatile organic compounds (VOCs), and extractable explosives is required as a condition of the permit. Results of the 2002 Soil Monitoring Event show no statistically significant increases in concentration of any metal or explosive constituents. One volatile organic constituent, ethanol, showed a statistically significant increase from background concentrations. However, ethanol is a common laboratory solvent used in soil analysis and is not generally associated with the activities conducted at the facility. For these reasons, this statistical increase is likely not related to activities at the facility and no further action with respect to this increase is warranted. These results support the conclusion that soil in the area has not been adversely affected by facility operations in 2002.

1.0 INTRODUCTION

This report summarizes data obtained during the 2002 Annual Soil Monitoring Event at the Clean Harbors Colfax, LLC facility (formerly Safety-Kleen (Colfax), Inc.) in Colfax, Louisiana (U.S. Environmental Protection Agency [EPA] Facility ID Number LAD 981 055 791/Agency Interest No. 32096). In September 2002, Clean Harbors Environmental Services, Inc. acquired the assets of Safety-Kleen Chemical Services Division, which included the Safety-Kleen (Colfax), Inc. facility. As a result of the new ownership, the facility name has changed to Clean Harbors Colfax, LLC.

Cameron-Cole, LLC has prepared this report in accordance with the facility Soil Monitoring Plan and amendments made by the EPA (Virogroup, 1993). This introductory section describes the facility, its surface geology, and summarizes soil-sampling activities conducted to comply with the analysis requirements.

1.1 Purpose and Objective

This report documents the statistical analysis of the Annual Soil Monitoring analytical results, which is performed to detect statistically significant increases in concentration of 15 metals, 45 volatile organic compounds (VOCs), and 14 extractable explosive constituents in soil around the facility.

1.2 Site Description

The facility is located at 3763 Highway 471 in Colfax, Louisiana. The facility has operated since March 1993 under a Resource Conservation Recovery Act (RCRA) Subpart X Permit that allows for the thermal destruction of explosive and reactive wastes. R&D Fabricating and Manufacturing, Inc. (R&D) began operations at the facility in June 1985. R&D was later acquired by Laidlaw Environmental Services (now Clean Harbors) in July 1993.

The facility covers more than 700 acres of hilly, wooded property located approximately 3 miles north of the city of Colfax. From 1985 to 1993 a site called the Old Burn Area, located in the west central portion of the property, was used to treat wastes. The New Burn Area began operation in 1993 in the central portion of the property.

1.3 Surface Geology

The site is located along the Tertiary-aged sedimentary trend of Central Louisiana, one mile east of the alluvial plain of the Red River. The facility is located within the subcrop area of the Oligocene-aged Catahoula Formation. The Catahoula Formation consists of gray to white sandstones, loose quartz sand, tuffaceous sandstone, volcanic ash, and brown sandy clays (Louisiana Geologic Survey, 1984). The upper six inches of the soil profile at the facility consists of tan to light brown sandy loams and clays, based on past soil sampling field reports (Safety-Kleen [Colfax], 1997-2000).

1.4 Sampling Summary

Soil samples were collected by ICON Environmental Services, Inc. (ICON) on August 7, 2002 in accordance with the Soil Monitoring Plan. ICON located 17 permanent markers, that identify the appropriate sampling locations, and then cleared the ground surface. A representative soil sample was then collected from the upper 6 inches of the soil profile using a clean stainless-steel hand trowel. In a similar manner, three designated offsite locations were located and sampled to increase the background data set. Appendix A includes the ICON sampling team's field soil sampling report and field notes, along with a map of the sampling locations. Samples were placed in appropriate glass containers, sealed in an ice-filled cooler, and sent via overnight courier under chain-of-custody documentation for analysis to Severn - Trent Laboratories, Inc. (STL) located in Arvada, Colorado.

2.0 DATA EVALUATION AND RESULTS

Analytical and statistical results of the 2002 Annual Soil Monitoring Event are consistent with previous events and support the conclusion that facility operations are not adversely affecting soils in the area. This section provides detailed information concerning the analytical and statistical results of the 2002 Annual Soil Monitoring Event.

2.1 Soil Analytical Results

2002 Annual Soil Monitoring analytical results are consistent with results from previous events. Eight metals and three VOCs were detected at or above their respective practical quantitation limits (PQLs). No extractable explosive constituents were detected. Tables 1, 2, and 3 summarize analytical results for the 2002 Annual Soil Monitoring Event. Appendix B summarizes analytical results from previous annual monitoring events. Previously collected metals results from these events are not included in Appendix B due to inaccuracies noted in metals results from samples collected prior to 1996 (1994 and 1995).

Fourteen metal constituents were analyzed using EPA Method 6010, and mercury was analyzed using EPA Method 7471. VOCs were analyzed using EPA Method 8260. Extractable explosive constituents were analyzed using EPA Method 8330.

Metals. Eight of the fifteen target metal constituents were detected at or above their respective PQLs. Table 1 provides a summary of the metal analytical results. These constituents, their frequency of detection, and range of concentrations during the 2002 event are summarized below.

Metal Detections Summary

Analytical Constituent	Number of Locations Detected At Or Above PQL	Detected Ranges (mg/kg)
Arsenic	0 of 17	Below PQL
Antimony	0 of 17	Below PQL
Barium	17 of 17	9.7 - 70
Beryllium	2 of 17	0.31 - 0.36
Cadmium	0 of 17	Below PQL
Chromium	16 of 17	2.1 - 9.6
Copper	15 of 17	1.1 - 24
Lead	17 of 17	6.4 - 26
Mercury	0 of 17	Below PQL
Nickel	9 of 17	1.2 - 2.9
Selenium	0 of 17	Below PQL
Silver	0 of 17	Below PQL
Thallium	0 of 17	Below PQL
Vanadium	17 of 17	2.8 - 18
Zinc	17 of 17	3.2 - 16

Barium, lead, vanadium, and zinc were detected in all 17 soil samples at or above their respective PQLs. Chromium and copper were detected in 16 and 15 of the samples, respectively, and nickel and beryllium were detected in 9 and 2 samples, respectively. Antimony, arsenic, cadmium, mercury, selenium, silver, and thallium were not detected at or above their respective PQLs.

Volatile Organic Compounds. Three of the forty-five target VOCs analyzed were detected at or above their respective PQLs (acetone, ethanol, and methylene chloride). However, these constituents are common laboratory compounds used in the analysis of soil samples and are not associated with the activities conducted at the facility. Table 2 provides a summary of the VOC analytical results.

2.2 Statistical Analyses

The three VOCs and eight metals detected were statistically analyzed. Because no extractable explosive constituents were detected at or above their respective PQLs, statistical analysis was not performed for these constituents.

Method Description. As described in the Soil Monitoring Plan, each constituent detected at or above its PQL at any sampling location was analyzed to assess whether a statistically significant increase in that constituent was noted above background levels. Samples with constituents reported as below their respective PQLs were statistically analyzed using the PQL value. For example, a soil sample in which copper was not detected above the PQL, the copper PQL value of 1.1 mg/kg was used for statistical analysis (EPA, 1996). The 2002 statistics data set was comprised of values from samples S01 through S17. Duplicate or offsite soil samples were not included in the data set. The background soil sample data set consisted of the following samples: OFF1-0596, OFF2-0596, OFF3-0596 (three samples collected offsite during May 1996); S01-0596, S02-0596, S03-0596 (three samples collected onsite during May 1996); OFF1-0796, OFF2-0796, OFF3-0796 (three samples collected offsite during July 1996); and S01-0796, S02-0796, S03-0796 (three annual soil monitoring samples collected during July 1996).

The arithmetic mean and variance for both the established background data set and the 2002 sample data set were first calculated. The means for the data sets were then compared using the Cochran's Approximation to the Behrens-Fisher Student t-test as outlined in 40 code of federal regulations (CFR) Part 264, Appendix IV. Appendix C provides a detailed explanation of this test. A test using a standard t-table at a 0.05 level of significance (95% confidence level) was used to compute the critical t value (t_c) for each constituent. If the t statistic value (t^*) derived from the detected values of a constituent was equal to or larger than t_c, it would have been concluded that a statistically significant increase in that constituent had occurred above background levels. If t^* was below t_c for a given constituent, then it was concluded that no statistically significant increase had occurred in that constituent.

Metals. Table 4 summarizes statistical analysis results for the eight metal constituents detected at or above their respective PQLs. The t^* was less than the t_c for all eight metals detected. Therefore, no statistically significant increase was observed in these metal constituents over

background soil levels during the 2002 Annual Soil Monitoring Event.

Volatile Organic Compounds. Table 5 summarizes the statistical analysis results for the three detected VOCs. Only one compound (ethanol) showed a statistically significant increase.

Extractable Explosive Compounds. Extractable explosive constituents were not detected at or above their respective PQLs during the 2002 Annual Soil Monitoring Event. Therefore, statistical analysis of extractable explosive constituents was not performed.

2.3 Laboratory Quality Assurance/Quality Control Procedures

This section presents a description of standard quality assurance/quality control (QA/QC) procedures that were practiced at the STL laboratory during the soil sample analyses. These procedures were followed so that soil samples were representative of field conditions and laboratory analytical results were valid.

STL performed each test under a rigorous QA/QC program including blanks, method controls, and matrix spikes. Methods were calibrated using authentic reference materials with a minimum of a three-point calibration curve as appropriate. All PQLs were validated and STL adhered to EPA-established sample holding times for sample analysis.

STL presented a QA/QC Laboratory narrative with the final analytical laboratory report. Several anomalies were reported during analysis; however, none of the anomalies affected the reported detected concentrations and no corrective action was deemed necessary. The laboratory case narrative is included as Appendix D.

3.0 CONCLUSIONS

Statistically significant increases over respective background values were noted for one constituent (ethanol). However, ethanol is a common laboratory solvent used in the analysis of soil samples and is not generally associated with activities at the facility. No further action with respect to this statistical increase is warranted. This section presents the principle conclusions of the monitoring event. These results support the conclusion that soil in the area has not been adversely affected by facility operations in 2002.

- Eight metal constituents were detected at or above their respective PQLs during this event. Statistical analysis of these metals against an established background data set indicated no statistically significant increase over background levels during the 2002 Annual Soil Monitoring Event.
- Three VOCs were detected at or above their respective PQLs during the 2002 Annual Soil Monitoring Event. Statistical analysis of these constituents indicated a statistically significant increase over background concentrations in one compound.
- Extractable explosive constituents were not detected at or above their respective PQLs during the 2002 Annual Soil Monitoring Event.
- As described in the Soil Monitoring Plan, based upon the analytical and statistical results collected from the 2002 Annual Soil Monitoring Event, no further actions are required.

4.0 REFERENCES

Louisiana Geologic Survey, *Geologic Map of Louisiana,* 1984.

Safety-Kleen (Colfax), Inc., *1997-2001 Annual Soil Monitoring Report, Safety-Kleen (Colfax) Thermal Treatment Facility, Colfax, Louisiana,* 1997-2001.

USEPA, *Cochran's Approximation to the Behrens-Fisher Students' t-Test,* 40 Code of Federal Regulations, Part 264, Appendix IV.

USEPA, *Superfund Guidance for Evaluating the Attainment of Cleanup Standards*, Section 7.1, 1996.

ViroGroup, Inc., *Soil Monitoring Plan, Laidlaw Environmental Services Thermal Treatment Facility, Colfax, Louisiana (Revised),* July 1993.

ViroGroup, Inc., *1995 Annual Soil Monitoring Report, Laidlaw Environmental Services Thermal Treatment Facility, Colfax, Louisiana,* September 1995.

TABLES

TABLE 1
SOIL ANALYTICAL DATA, METAL CONSTITUENTS
2002 ANNUAL SOIL MONITORING EVENT
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Sample ID	S01-	S02-	S03-	S04-	S05-	S06-	S07-	S08-	S09-	S10-
Date	0802	0802	0802	0802	0802	0802	0802	0802	0802	0802
METALS										
Arsenic	< 5.3	< 6.0	< 5.8	< 5.6	< 6.1	< 5.7	< 6.1	< 6.2	< 5.8	< 5.6
Antimony	< 2.7	< 3.0	< 2.9	< 2.8	< 3.0	< 2.8	< 3.0	< 3.1	< 2.9	< 2.8
Barium	13	14	20	21	17.0	23	14	20	40	15
Beryllium	< 0.27	< 0.30	< 0.29	< 0.28	< 0.30	< 0.28	< 0.30	< 0.31	< 0.29	< 0.28
Cadmium	< 0.27	< 0.30	< 0.29	< 0.28	< 0.30	< 0.28	< 0.30	< 0.31	< 0.29	< 0.28
Chromium	3.2	2.9	2.8	3.8	2.7	< 1.4	2.8	6.2	3.4	3.0
Copper	1.1	2.7	1.5	1.5	1.3	1.1	2.8	3.1	2.6	< 1.1
Lead	6.9	8.3	8.8	8.0	8.2	6.5	7.9	13	8.5	6.5
Mercury	< 0.043	< 0.048	< 0.046	< 0.045	< 0.049	< 0.045	< 0.049	< 0.05	< 0.046	< 0.045
Nickel	< 1.1	< 1.2	1.2	1.5	< 1.2	< 1.1	< 1.2	1.5	1.7	< 1.1
Selenium	< 5.3	< 6.0	< 5.8	< 5.6	< 6.1	< 5.7	< 6.1	< 6.2	< 5.8	< 5.6
Silver	< 0.53	< 0.60	< 0.58	< 0.56	< 0.6	< 0.57	< 0.61	< 0.62	< 0.58	< 0.56
Thallium	< 2.7	< 3.0	< 2.9	< 2.8	< 3.0	< 2.8	< 3.0	< 3.1	< 2.9	< 2.8
Vanadium	7.3	6.0	6.1	10	5.9	2.8	8.1	14	7.1	6.7
Zinc	4.4	6.3	5.2	8.7	3.5	5.8	4.0	10	8.3	3.2
Total Solids (wt%)	94.0	83.0	86.0	90.0	82.0	88.0	82.0	80.0	86.0	88.0
Location	S11-	S12-	S13-	S14-	S15-	S16-	S17-	OFF1-	OFF2-	OFF3-
Date	0802	0802	0802	0802	0802	0802	0802	0802	0802	0802
METALS										
Arsenic	< 6.4	< 6.1	< 6.0	< 6.0	< 7.1	< 6.1	< 5.7	< 5.6	< 5.6	< 6.2
Antimony	< 3.2	< 3.1	< 3.0	< 3.0	< 3.6	< 3.1	< 2.9	< 2.8	< 2.8	< 3.1
Barium	22	9.7	39	52	48	54	70	57	38	31
Beryllium	< 0.32	< 0.31	< 0.30	0.36	< 0.36	< 0.31	0.31	0.29	< 0.28	< 0.31
Cadmium	< 0.32	< 0.31	< 0.30	< 0.30	< 0.36	< 0.31	< 0.29	< 0.28	< 0.28	< 0.31
Chromium	2.5	2.1	4.4	9.6	3.4	8.4	8.6	18	7.3	2.8
Copper	1.7	< 1.2	3.1	7.1	7.6	24	10	4.4	1.7	1.5
Lead	6.8	6.4	8.5	16	17	26	16	21	5.9	7.5
Mercury	< 0.051	< 0.049	< 0.048	< 0.048	< 0.057	< 0.049	< 0.046	< 0.045	< 0.045	< 0.050
Nickel	< 1.3	< 1.2	1.4	1.9	1.9	2.9	2.5	6.6	2.6	< 1.2
Selenium	< 6.4	< 6.1	< 6.0	< 6.0	< 7.1	< 6.1	< 5.7	< 5.6	< 5.6	< 6.2
Silver	< 0.64	< 0.61	< 0.60	< 0.60	< 0.71	< 0.61	< 0.57	< 0.56	< 0.56	< 0.62
Thallium	< 3.2	< 3.1	< 3.0	< 3.0	< 3.6	< 3.1	< 2.9	< 2.8	< 2.8	< 3.1
Vanadium	6.5	4.9	9.3	17	7.6	16	18	24	9.2	6.4
Zinc	4.8	3.4	7.4	12	9.5	15	16	15	6.6	4.2
Total Solids (wt%)	78.0	81.0	83.0	83.0	70.0	81.0	87.0	89.0	89.0	81.0

Notes:
All data given in milligrams per kilogram (mg/kg).
Samples collected on August 7, 2002.
< # ### Indicates result is below the practical quantitation limit shown.

TABLE 2
SOIL ANALYTICAL DATA, VOLATILE ORGANIC CONSTITUENTS
2002 ANNUAL SOIL MONITORING EVENT
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S01-	S02-	S03-	S04-	S05-	S06-	S07-	S08-	S09-	S10-
Date	0802	0802	0802	0802	0802	0802	0802	0802	0802	0802
PARAMETERS										
Acetone	< 0.011	< 0.012	< 0.012	< 0.011	< 0.012	0.011	< 0.012	< 0.012	< 0.012	< 0.011
Acrolein	< 0.11	< 0.12	< 0.12	< 0.11	< 0.12	< 0.11	< 0.12	< 0.12	< 0.12	< 0.11
Acrylonitrile	< 0.053	< 0.06	< 0.058	< 0.056	< 0.061	< 0.057	< 0.061	< 0.062	< 0.058	< 0.056
Benzene	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Bromochloromethane	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Bromodichloromethane	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Bromoform	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Bromomethane	< 0.011	< 0.012	< 0.012	< 0.011	< 0.012	< 0.011	< 0.012	< 0.012	< 0.012	< 0.011
Carbon Disulfide	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Carbon Tetrachloride	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Chlorobenzene	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Chlorodibromomethane	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Chloroethane	< 0.011	< 0.012	< 0.012	< 0.011	< 0.012	< 0.011	< 0.012	< 0.012	< 0.012	< 0.011
2-Chloroethyl Vinyl Ether	< 0.053	< 0.06	< 0.058	< 0.056	< 0.061	< 0.057	< 0.061	< 0.062	< 0.058	< 0.056
Chloroform	< 0.005	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Choromethane	< 0.011	< 0.012	< 0.012	< 0.011	< 0.012	< 0.011	< 0.012	< 0.012	< 0.012	< 0.011
Dibromomethane	< 0.011	< 0.012	< 0.012	< 0.011	< 0.012	< 0.011	< 0.012	< 0.012	< 0.012	< 0.011
1,4-Dichloro-2-Butane	< 0.011	< 0.012	< 0.012	< 0.011	< 0.012	< 0.011	< 0.012	< 0.012	< 0.012	< 0.011
Dichlorodiflouromethane	< 0.011	< 0.012	< 0.012	< 0.011	< 0.012	< 0.011	< 0.012	< 0.012	< 0.012	< 0.011
1,1-Dichloroethane	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
1,2-Dichloroethane	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
1,1-Dichloroethene	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Trans-1,2-Dichloroethene	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056

Notes:
All data given in milligrams per kilograms (mg/kg).
Samples collected on August 7, 2002.
This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.### Indicates result is below the practical quantitation limit indicated.

TABLE 2
SOIL ANALYTICAL DATA, VOLATILE ORGANIC CONSTITUENTS
2002 ANNUAL SOIL MONITORING EVENT
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S01-	S02-	S03-	S04-	S05-	S06-	S07-	S08-	S09-	S10-
Date / PARAMETERS	0802	0802	0802	0802	0802	0802	0802	0802	0802	0802
1,2-Dichloropropane	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Cis-1,3-Dichloropropene	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Trans-1,3-Dichloropropene	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Ethanol	< 1.1	< 1.2	< 1.2	< 1.1	< 1.2	**1.9**	< 1.2	< 1.2	< 1.2	< 1.1
Ethylbenzene	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Ethyl Methacrylate	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
2-Hexanone	< 0.011	< 0.012	< 0.012	< 0.011	< 0.012	< 0.011	< 0.012	< 0.012	< 0.012	< 0.011
Iodomethane	< 0.011	< 0.012	< 0.012	< 0.011	< 0.012	< 0.011	< 0.012	< 0.012	< 0.012	< 0.011
Methylene Chloride	< 0.0053	< 0.006	< 0.0058	**0.0067**	< 0.0061	**0.0069**	< 0.0061	< 0.0062	< 0.0058	< 0.0056
4-Methyl-2-Pentanone	< 0.011	< 0.012	< 0.012	< 0.011	< 0.012	< 0.011	< 0.012	< 0.012	< 0.012	< 0.011
Styrene	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
1,1,2,2-Tetrachloroethane	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Tetrachloroethene	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Toluene	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
1,1,1-Trichloroethane	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
1,1,2-Trichloroethane	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Trichloroethene	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
Trichloroflouromethane	< 0.005	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056
1,2,3-Trichloropropane	< 0.011	< 0.012	< 0.012	< 0.011	< 0.012	< 0.011	< 0.012	< 0.012	< 0.012	< 0.011
Vinyl Acetate	< 0.011	< 0.012	< 0.012	< 0.011	< 0.012	< 0.011	< 0.012	< 0.012	< 0.012	< 0.011
Vinyl Chloride	< 0.011	< 0.012	< 0.012	< 0.011	< 0.012	< 0.011	< 0.012	< 0.012	< 0.012	< 0.011
Total Xylene	< 0.0053	< 0.006	< 0.0058	< 0.0056	< 0.0061	< 0.0057	< 0.0061	< 0.0062	< 0.0058	< 0.0056

Notes:
All data given in milligrams per kilograms (mg/kg).
Samples collected on August 7, 2002.
This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.### Indicates result is below the practical quantitation limit indicated.

TABLE 2
SOIL ANALYTICAL DATA, VOLATILE ORGANIC CONSTITUENTS
2002 ANNUAL SOIL MONITORING EVENT
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S11-	S12-	S13-	S14-	S15-	S16-	S17-	OFF1-	OFF2-	OFF3-
Date	0802	0802	0802	0802	0802	0802	0802	0802	0802	0802
PARAMETERS										
Acetone	< 0.013	< 0.012	< 0.012	< 0.012	< 0.014	< 0.012	< 0.011	< 0.011	< 0.011	< 0.012
Acrolein	< 0.13	< 0.12	< 0.12	< 0.12	< 0.14	< 0.12	< 0.11	< 0.11	< 0.11	< 0.12
Acrylonitrile	< 0.064	< 0.061	< 0.06	< 0.06	< 0.071	< 0.061	< 0.057	< 0.056	< 0.056	< 0.062
Benzene	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Bromochloromethane	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Bromodichloromethane	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Bromoform	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Bromomethane	< 0.013	< 0.012	< 0.012	< 0.012	< 0.014	< 0.012	< 0.011	< 0.011	< 0.011	< 0.012
Carbon Disulfide	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Carbon Tetrachloride	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Chlorobenzene	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Chlorodibromomethane	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Chloroethane	< 0.013	< 0.012	< 0.012	< 0.012	< 0.014	< 0.012	< 0.011	< 0.011	< 0.011	< 0.012
2-Chloroethyl Vinyl Ether	< 0.064	< 0.061	< 0.06	< 0.06	< 0.071	< 0.061	< 0.057	< 0.056	< 0.056	< 0.062
Chloroform	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Choromethane	< 0.013	< 0.012	< 0.012	< 0.012	< 0.014	< 0.012	< 0.011	< 0.011	< 0.011	< 0.012
Dibromomethane	< 0.013	< 0.012	< 0.012	< 0.012	< 0.014	< 0.012	< 0.011	< 0.011	< 0.011	< 0.012
1,4-Dichloro-2-Butane	< 0.013	< 0.012	< 0.012	< 0.012	< 0.014	< 0.012	< 0.011	< 0.011	< 0.011	< 0.012
Dichlorodiflouromethane	< 0.013	< 0.012	< 0.012	< 0.012	< 0.014	< 0.012	< 0.011	< 0.011	< 0.011	< 0.012
1,1-Dichloroethane	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
1,2-Dichloroethane	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
1,1-Dichloroethene	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Trans-1,2-Dichloroethene	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062

Notes:
All data given in milligrams per kilograms (mg/kg).
Samples collected on August 7, 2002.
This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.### Indicates result is below the practical quantitation limit indicated.

TABLE 2
SOIL ANALYTICAL DATA, VOLATILE ORGANIC CONSTITUENTS
2002 ANNUAL SOIL MONITORING EVENT
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S11-	S12-	S13-	S14-	S15-	S16-	S17-	OFF1-	OFF2-	OFF3-
Date	0802	0802	0802	0802	0802	0802	0802	0802	0802	0802
PARAMETERS										
1,2-Dichloropropane	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Cis-1,3-Dichloropropene	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Trans-1,3-Dichloropropene	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Ethanol	< 1.3	< 1.2	< 1.2	< 1.2	< 1.4	< 1.2	< 1.1	< 1.1	< 1.1	< 1.2
Ethylbenzene	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Ethyl Methacrylate	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
2-Hexanone	< 0.013	< 0.012	< 0.012	< 0.012	< 0.014	< 0.012	< 0.011	< 0.011	< 0.011	< 0.012
Iodomethane	< 0.013	< 0.012	< 0.012	< 0.012	< 0.014	< 0.012	< 0.011	< 0.011	< 0.011	< 0.012
Methylene Chloride	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.011	< 0.0056	< 0.0056	< 0.0062
4-Methyl-2-Pentanone	< 0.013	< 0.012	< 0.012	< 0.012	< 0.014	< 0.012	< 0.011	< 0.011	< 0.011	< 0.012
Styrene	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
1,1,2,2-Tetrachloroethane	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Tetrachloroethene	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Toluene	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
1,1,1-Trichloroethane	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
1,1,2-Trichloroethane	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Trichloroethene	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
Trichloroflouromethane	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062
1,2,3-Trichloropropane	< 0.013	< 0.012	< 0.012	< 0.012	< 0.014	< 0.012	< 0.011	< 0.011	< 0.011	< 0.012
Vinyl Acetate	< 0.013	< 0.012	< 0.012	< 0.012	< 0.014	< 0.012	< 0.011	< 0.011	< 0.011	< 0.012
Vinyl Chloride	< 0.013	< 0.012	< 0.012	< 0.012	< 0.014	< 0.012	< 0.011	< 0.011	< 0.011	< 0.012
Total Xylene	< 0.0064	< 0.0061	< 0.006	< 0.006	< 0.0071	< 0.0061	< 0.0057	< 0.0056	< 0.0056	< 0.0062

Notes:
All data given in milligrams per kilograms (mg/kg).
Samples collected on August 7, 2002.
This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.### Indicates result is below the practical quantitation limit indicated.

TABLE 3
SOIL ANALYTICAL DATA, EXTRACTABLE EXPLOSIVE CONSTITUENTS
2002 ANNUAL SOIL MONITORING EVENT
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILTY ID NO. LAD 981 055 791

Location	S01-	S02-	S03-	S04-	S05-	S06-	S07-	S08-	S09-	S10-
Date / PARAMETERS	0802	0802	0802	0802	0802	0802	0802	0802	0802	0802
HMX	< 0.270	< 0.300	< 0.290	< 0.280	< 0.300	< 0.280	< 0.300	< 0.310	< 0.290	< 0.280
RDX	< 0.270	< 0.300	< 0.290	< 0.280	< 0.300	< 0.280	< 0.300	< 0.310	< 0.290	< 0.280
1,3,5-Trinitrobenzene	< 0.270	< 0.300	< 0.290	< 0.280	< 0.300	< 0.280	< 0.300	< 0.310	< 0.290	< 0.280
1,3-Dinitrobenzene	< 0.270	< 0.300	< 0.290	< 0.280	< 0.300	< 0.280	< 0.300	< 0.310	< 0.290	< 0.280
Tetryl	< 0.530	< 0.600	< 0.580	< 0.560	< 0.610	< 0.570	< 0.610	< 0.620	< 0.580	< 0.560
Nitrobenzene	< 0.270	< 0.300	< 0.290	< 0.280	< 0.300	< 0.280	< 0.300	< 0.310	< 0.290	< 0.280
2,4,6-Trinitrotoluene	< 0.270	< 0.300	< 0.290	< 0.280	< 0.300	< 0.280	< 0.300	< 0.310	< 0.290	< 0.280
4-Amino-2,6-Dinitrotoluene	< 0.270	< 0.300	< 0.290	< 0.280	< 0.300	< 0.280	< 0.300	< 0.310	< 0.290	< 0.280
2-Amino-4,6-Dinitrotoluene	< 0.270	< 0.300	< 0.290	< 0.280	< 0.300	< 0.280	< 0.300	< 0.310	< 0.290	< 0.280
2,4-Dinitrotoluene	< 0.270	< 0.300	< 0.290	< 0.280	< 0.300	< 0.280	< 0.300	< 0.310	< 0.290	< 0.280
2,6-Dinitrotoluene	< 0.270	< 0.300	< 0.290	< 0.280	< 0.300	< 0.280	< 0.300	< 0.310	< 0.290	< 0.280
2-Nitrotoluene	< 0.270	< 0.300	< 0.290	< 0.280	< 0.300	< 0.280	< 0.300	< 0.310	< 0.290	< 0.280
3-Nitrotoluene	< 0.270	< 0.300	< 0.290	< 0.280	< 0.300	< 0.280	< 0.300	< 0.310	< 0.290	< 0.280
4-Nitrotoluene	< 0.270	< 0.300	< 0.290	< 0.280	< 0.300	< 0.280	< 0.300	< 0.310	< 0.290	< 0.280

Location	S11-	S12-	S13-	S14-	S15-	S16-	S17-	OFF1-	OFF2-	OFF3-
Date / PARAMETERS	0802	0802	0802	0802	0802	0802	0802	0802	0802	0802
HMX	< 0.320	< 0.310	< 0.300	< 0.300	< 0.360	< 0.310	< 0.290	< 0.280	< 0.280	< 0.310
RDX	< 0.320	< 0.310	< 0.300	< 0.300	< 0.360	< 0.310	< 0.290	< 0.280	< 0.280	< 0.310
1,3,5-Trinitrobenzene	< 0.320	< 0.310	< 0.300	< 0.300	< 0.360	< 0.310	< 0.290	< 0.280	< 0.280	< 0.310
1,3-Dinitrobenzene	< 0.320	< 0.310	< 0.300	< 0.300	< 0.360	< 0.310	< 0.290	< 0.280	< 0.280	< 0.310
Tetryl	< 0.640	< 0.610	< 0.600	< 0.600	< 0.710	< 0.610	< 0.570	< 0.560	< 0.560	< 0.620
Nitrobenzene	< 0.320	< 0.310	< 0.300	< 0.300	< 0.360	< 0.310	< 0.290	< 0.280	< 0.280	< 0.310
2,4,6-Trinitrotoluene	< 0.320	< 0.310	< 0.300	< 0.300	< 0.360	< 0.310	< 0.290	< 0.280	< 0.280	< 0.310
4-Amino-2,6-Dinitrotoluene	< 0.320	< 0.310	< 0.300	< 0.300	< 0.360	< 0.310	< 0.290	< 0.280	< 0.280	< 0.310
2-Amino-4,6-Dinitrotoluene	< 0.320	< 0.310	< 0.300	< 0.300	< 0.360	< 0.310	< 0.290	< 0.280	< 0.280	< 0.310
2,4-Dinitrotoluene	< 0.320	< 0.310	< 0.300	< 0.300	< 0.360	< 0.310	< 0.290	< 0.280	< 0.280	< 0.310
2,6-Dinitrotoluene	< 0.320	< 0.310	< 0.300	< 0.300	< 0.360	< 0.310	< 0.290	< 0.280	< 0.280	< 0.310
2-Nitrotoluene	< 0.320	< 0.310	< 0.300	< 0.300	< 0.360	< 0.310	< 0.290	< 0.280	< 0.280	< 0.310
3-Nitrotoluene	< 0.320	< 0.310	< 0.300	< 0.300	< 0.360	< 0.310	< 0.290	< 0.280	< 0.280	< 0.310
4-Nitrotoluene	< 0.320	< 0.310	< 0.300	< 0.300	< 0.360	< 0.310	< 0.290	< 0.280	< 0.280	< 0.310

Notes:
All data given in milligrams per kilogram (mg/kg).
Samples collected on August 7, 2002.
<#.## Indicates result is below the practical quantitation limit (PQL) indicated.

TABLE 4
STATISTICAL ANALYSIS OF METAL CONSTITUENTS
2002 ANNUAL SOIL MONITORING EVENT
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

PARAMETERS	BACKGROUND DATA		2002 MONITORING DATA		t VALUES		STATISTICALLY SIGNIFICANT INCREASE?
	Mean	Variance	Mean	Variance	t*	tc	(t*>tc)
Chromium	3.648	24.159	4.188	6.067	0.268	2.189	NO
Zinc	9.265	12.492	7.500	15.698	-0.891	2.163	NO
Barium	32.036	543.995	28.924	321.649	-0.281	2.177	NO
Lead	7.500	9.727	10.547	28.669	1.386	2.146	NO
Copper	2.064	2.315	4.324	32.603	1.239	2.127	NO
Nickel	2.320	5.460	1.524	0.268	-0.995	2.198	NO
Beryllium	0.500	0.000	0.304	0.001	-32.287	2.120	NO
Vanadium	10.298	63.722	9.018	20.198	-0.377	2.186	NO

Notes:
t* = t statistic
tc = Critical t value
Background degrees of freedom = (nb-1) = (12-1)=11
Monitoring degrees of freedom = (nm-1) = (17-1)=16
Tb = t-table value with (nb-1) degrees of freedom, at the 0.025 level of significance = 2.201
Tm = t-table value with (nm-1) degrees of freedom, at the 0.025 level of significance = 2.12
See Appendix C for statistical formulas used and an explanation of the Students' t-test used.

TABLE 5
STATISTICAL ANALYSIS OF VOLATILE ORGANIC CONSTITUENTS CONSTITUENTS
2002 ANNUAL SOIL MONITORING EVENT
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

PARAMETERS	BACKGROUND DATA		2002 MONITORING DATA		t values		STATISTICALLY SIGNIFICANT INCREASE?
	Mean	Variance	Mean	Variance	t*	tc	(t*>tc)
Acetone	0.1521429	0.000956593	0.011882	6.10294E-07	-16.588	2.159	NO
Ethanol	0.17071429	0.001468681	1.235294	3.49E-02	19.159	2.122	YES
Methylene Chloride	0.14357143	0.00524011	0.006424	1.59E-06	-6.979	2.159	NO

Notes:
t* = t statistic
tc = Critical t value
Background degrees of freedom = (nb-1) = (14-1)=13
Monitoring degrees of freedom = (nm-1) = (17-1)=16
Tb = t-table value with (nb-1) degrees of freedom, at the 0.025 level of significance = 2.201
Tm = t-table value with (nm-1) degrees of freedom, at the 0.025 level of significance = 2.12
See Appendix C for statistical formulas used and an explanation of the Students' t-test used.

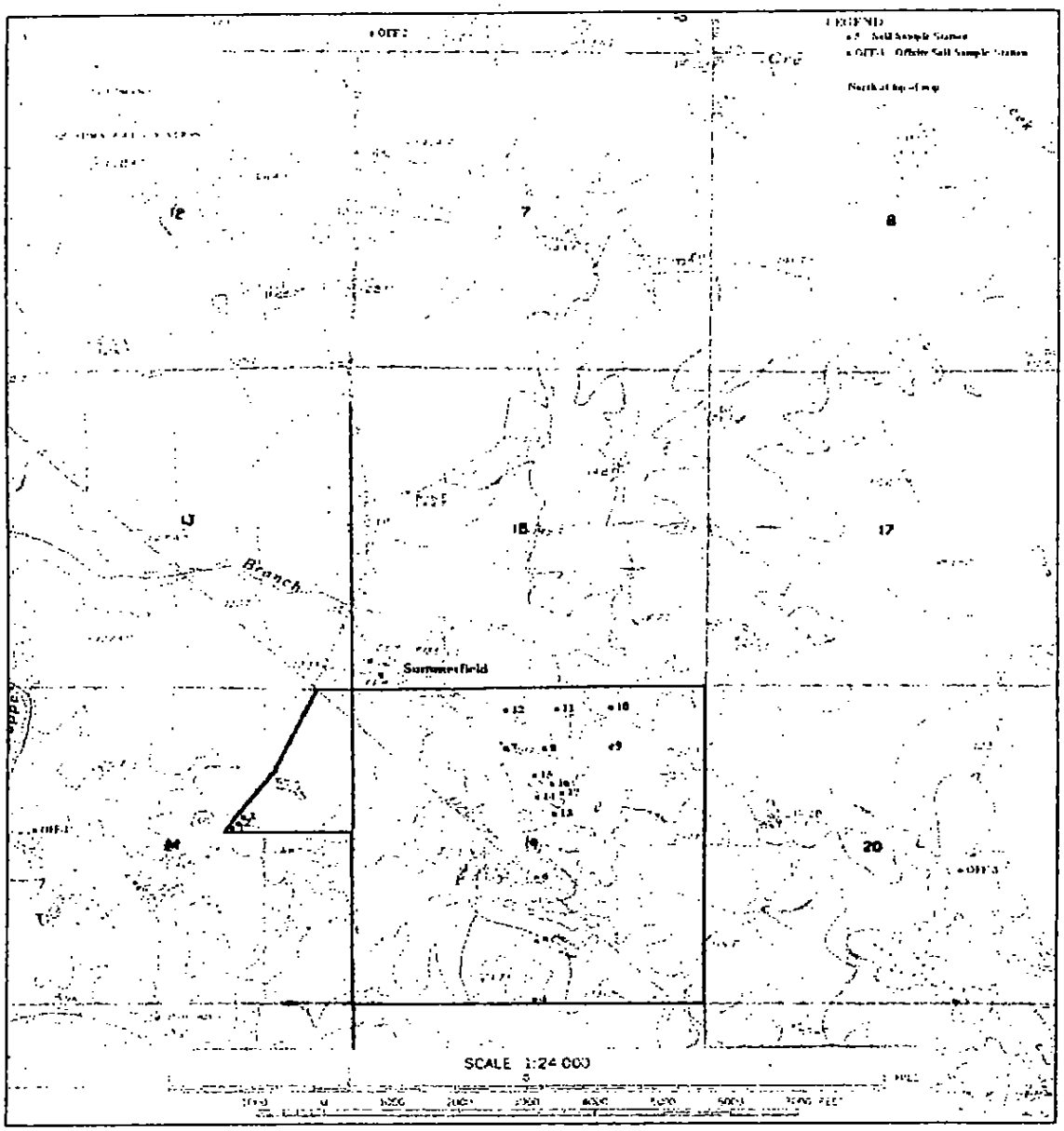
APPENDIX A

FIELD SOIL SAMPLING REPORT AND NOTES

BEST COPY

for the following Pages

2



SAMPLE POINT	LATITUDE (DEG:MIN:SEC)	LONGITUDE (DEG:MIN:SEC)	SAMPLE POINT	LATITUDE (DEG:MIN:SEC)	LONGITUDE (DEG:MIN:SEC)
OFF-1 Inter.	31:34:16	92:44:15	# 7	31:34:30	92:42:51
OFF-2 Inter.	31:36:31	92:43:18	# 8	31:34:30	92:42:45
OFF-3 Inter.	31:34:20	92:40:35	# 9	31:34:31	92:42:33
OFF-1	31:34:13	92:44:15	# 10	31:34:38	92:42:33
OFF-2	31:36:25	92:43:09	# 11	31:34:37	92:42:44
OFF-3	31:34:19	92:40:33	# 12	31:33:36	92:42:51
#1	31:34:15	92:43:38	# 13	31:34:20	92:42:43
#2	31:34:16	92:43:39	# 14	31:34:22	92:42:46
#3	31:34:17	92:43:40	# 15	31:34:28	92:42:46
# 4	31:33:49	92:42:46	# 16	31:34:26	92:42:45
# 5	31:33:59	92:42:46	# 17	31:34:25	92:42:43
# 6	31:34:09	92.42.46			

FIGURE 1

OIL SAMPLE STATION LOCATIONS
AFETY-KLEEN (COLFAX), INC.
COLFAX, LOUISIANA

ICON
1055 Convention Street 2nd Floor Baton Rouge, LA 70802

File Name: [illegible]
Project Number: [illegible]
Date: August 2001
Source: Survey, Steve Grantham
TSM, USGS Topo Colfax, LA, TSU

Safety Kleen Colfax
8-7-02
Soil Descriptions
C. Hoffpauir

Time	Sample Site	Disc.
10 25	S01 - 0802	Tn, (Fn) - Snd.
1032	S02 - 0802	Tn, (Fn) Snd. - Loam,
1040	S03 - 0802	Tn, (Fn) Snd. - Loam,
1105	S04 - 0802	Tn, (Fn) Snd - Loam,
1052	S05 - 0802	Tn, (Fn) Snd - Loam.
1116	S06 - 0802	Tn, (Fn) Snd - Loam.
1205	S07 - 0802	Dk. Brn, (Cls) Snd - Loam w/ Pine Straw
1237	S08 - 0802	Tn, Snd - Loam
1135	S09 - 0802	Tn, (Fn) Snd Loam.
1130	S10 - 0802	Lt Brn, (Fn) Sndy - Cly.
1157	S11 - 0802	Tn, Sndy Loam w/ Pine Straw.
18	S12 - 0802	Tn, Sndy - Loam w/ Pine Straw.
1320	S13 - 0802	Tn, Sand w/ Lrge Rust Colored Patches.
1311	S14 - 0802	Tn, Snd w/ Large Rust Colored Nodules & Patches.
1249	S15 - 0802	Dk. Brn, Sndy - Loam.
1257	S16 - 0802	Slty - Snd w/ Rust Colored Nodules & Snd Stn.
1303	S17 - 0802	Slty - Snd w/ Rust Colored Nodules.
Taken @ S12 - 0802	S80 - 0802	See Above.
945	Soff 1 - 0802	Lt Brn, Sndy Cly w/ Pine Straw.
930	Soff 2 - 0802	Tan, Sandy Loam Fine Grain Size.
1005	Soff 3 - 0802	Brn, Sand w/ organic debris.

APPENDIX B

HISTORICAL SOIL ANALYTICAL DATA

Table B-1 Historical Soil Analytical Data, Metal Constituents
Table B-2 Historical Soil Analytical Data, VOCs
Table B-3 Historical Soil Analytical Data, Extractable Explosive Constituents

Note: ViroGroup, Inc. of Greer, SC, performed sampling for both 1994 and 1995 soil monitoring events and the reporting for the 1995 soil monitoring event. L.A.B.S., Inc. of Lafayette, LA, performed metals and volatile organic soil analysis for both events, and Environmental Science & Engineering, Inc. (ESE) of Gainesville, FL, performed extractable explosive analyses for both events.

TABLE B-1
HISTORICAL SOIL ANALYTICAL DATA
METAL CONSTITUENTS
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S01-								S02-							
Sample Date	0802	0701	0700	799	898	797	796	596	0802	0701	0700	799	898	797	796	596
METALS																
Arsenic	< 5.3	< 5.5	< 5.5	< 5.2	< 5.0	< 5	< 5	< 5	< 6.0	< 5.4	< 5.1	< 5.2	< 5.0	< 5	< 5	< 5
Antimony	< 2.7	< 2.8	< 2.7	< 2.6	< 2.5	< 2.5	< 5	< 5	< 3.0	< 2.7	< 2.6	< 2.6	< 2.5	< 2.5	< 5	< 5
Barium	13	12.3	10.2	14.2	12	10	19.3	12.1	14	17.5	9.6	15.1	12	10	10.4	17.6
Beryllium	< 0.27	< 0.28	< 0.27	< 0.26	< 0.25	< 0.5	< 0.5	< 0.5	< 0.30	< 0.27	< 0.26	< 0.26	< 0.25	< 0.5	< 0.5	< 0.5
Cadmium	< 0.27	< 0.28	< 0.27	< 0.26	< 0.25	< 0.5	< 0.5	< 0.5	< 0.30	< 0.27	< 0.26	< 0.26	< 0.25	< 0.5	< 0.5	< 0.5
Chromium	3.2	2.6	1.5	3.2	1.7	1.3	0.6	1.5	2.9	2.3	1.6	2.7	< 1.0	1.5	0.7	3.3
Copper	1.1	< 1.1	< 1.1	1.6	1.1	< 1	1.9	1.10	2.7	1.3	1.1	1.5	1.1	1.90	1.37	2.30
Lead	6.9	6.2	5.9	6.8	6.8	3.7	7	< 5	8.3	8.8	7.4	12.0	7.4	6.1	7	8
Mercury	< 0.043	< 0.044	< 0.044	< 0.041	< 0.040	< 0.04	0.04	0.02	< 0.048	< 0.044	< 0.041	< 0.042	< 0.040	< 0.04	0.03	0.03
Nickel	< 1.1	< 1.1	< 1.1	< 1.0	< 1.0	< 1	3.1	< 0.5	< 1.2	< 1.1	< 1.0	< 1	< 1.0	< 1	< 0.5	< 0.5
Selenium	< 5.3	< 5.5	< 5.5	< 5.2	< 5.0	< 5	< 5	< 5	< 6.0	< 5.4	< 5.1	< 5.2	< 5.0	< 5	< 5	< 5
Silver	< 0.53	< 0.55	< 0.55	< 0.52	< 0.50	< 0.5	< 0.5	< 0.5	< 0.60	< 0.54	< 0.51	< 0.52	< 0.50	< 0.5	< 0.5	< 0.5
Thallium	< 2.7	< 2.8	< 2.7	< 2.6	< 2.5	< 2.5	< 5	< 5	< 3.0	< 2.7	< 2.6	< 2.6	< 2.5	< 2.5	< 5	< 5
Vanadium	7.3	6.1	4.6	8.0	5.2	4.1	6.6	4.3	6.0	5.1	1.0	6.9	3.9	3.7	4.91	5.2
Zinc	4.4	3.3	2.1	4.2	2.6	11	9.87	5.6	6.3	5.1	2.5	4.1	6.8	5.9	8.22	9.4
Total Solids (wt%)	94.0	90.2	91.2	96.8	98.3	93.2	85.6	97.7	83.0	91.9	97.4	95.5	91.9	93.6	87.6	83.3

Notes.
All data given in milligrams per kilogram (mg/kg).
<#.## indicates result is below the practical quantitation limit (PQL) shown.

TABLE B-1
HISTORICAL SOIL ANALYTICAL DATA
METAL CONSTITUENTS
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S03-								S04-						
Sample Date	0802	0701	0700	0799	0898	0797	0796	0596	0802	0701	0700	0799	0898	0797	0796
METALS															
Arsenic	< 5.8	< 5.9	< 5.2	< 5.4	< 5.0	< 5	< 5	< 5	< 5.6	< 6.0	< 5.3	< 5.2	< 5.0	< 5	< 5
Antimony	< 2.9	< 3.0	< 2.6	< 2.7	< 2.5	< 2.5	< 5	< 5	< 2.8	< 3.0	< 2.6	< 2.6	< 2.5	< 2.6	< 5
Barium	20	13.9	14.6	15.7	14	16	17.2	23	21	11.6	9.8	11.7	14	7.9	11.8
Beryllium	< 0.29	< 0.30	< 0.26	< 0.27	< 0.25	< 0.5	< 0.5	< 0.5	< 0.28	< 0.30	< 0.26	< 0.26	< 0.25	< 0.5	< 0.5
Cadmium	< 0.29	< 0.30	< 0.26	< 0.27	< 0.25	< 0.5	< 0.5	< 0.5	< 0.28	< 0.30	< 0.26	< 0.26	< 0.25	< 0.5	< 0.5
Chromium	2.8	2.3	1.5	2.0	1.1	< 1	< 0.5	1.7	3.8	1.3	< 1.1	1.3	< 1.0	< 1	< 0.5
Copper	1.5	< 1.2	1.1	1.1	2.3	2.2	< 0.5	1.3	1.5	< 1.2	< 1.1	< 1	4.9	< 1	< 0.5
Lead	8.8	7.3	7.3	8.0	6.9	6.9	< 5	< 5	8.0	5.3	5.2	6.6	7.9	4.4	< 5
Mercury	< 0.046	< 0.048	< 0.042	< 0.043	< 0.040	< 0.04	0.04	0.02	< 0.045	< 0.048	< 0.042	< 0.042	< 0.040	< 0.04	0.03
Nickel	1.2	< 1.2	< 1.0	< 1.1	< 1.0	< 1	< 0.5	< 0.5	1.5	< 1.2	< 1.1	< 1	< 1.0	2.2	< 0.5
Selenium	< 5.8	< 5.9	< 5.2	< 5.4	< 5.0	< 5	< 5	< 5	< 5.6	< 6.0	< 5.3	< 5.2	< 5.0	< 5	< < 5
Silver	< 0.58	< 0.59	< 0.52	< 0.54	< 0.50	< 0.5	< 0.5	< 0.5	< 0.56	< 0.60	< 0.53	< 0.52	< 0.50	< 0.5	< 0.5
Thallium	< 2.9	< 3.0	< 2.6	< 2.7	< 2.5	< 2.5	< 5	< 5	< 2.8	< 3.0	< 2.6	< 2.6	< 2.5	< 2.6	< 5
Vanadium	6.1	5.2	5	5.4	3.9	3.2	4.17	4.8	10	3.1	1.9	3.1	3.4	1.8	2.88
Zinc	5.2	4.6	3.1	4.1	12	5.1	6.64	7.5	8.7	4.2	3	3.9	53	7.4	12.9
Total Solids (wt%)	86.0	84.1	95.8	92.5	94.3	78.3	85.0	83.0	90.0	83.2	95.0	95.8	90.7	75.9	86.7

Notes:
All data given in milligrams per kilogram (mg/kg).
<#.## indicates result is below the practical quantitation limit (PQL) shown.

TABLE B-1
HISTORICAL SOIL ANALYTICAL DATA
METAL CONSTITUENTS
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S05-							S06-						
Sample Date	0802	0701	0700	799	898	797	796	0802	0701	0700	799	898	797	796
METALS														
Arsenic	< 6.1	< 6.2	< 5.2	< 5.4	< 5.0	6.6	< 5	< 5.7	< 6.1	< 5.1	< 5.2	< 5.0	< 5	< 5
Antimony	< 3.0	< 3.1	< 2.6	< 2.7	< 2.5	< 2.5	< 5	< 2.8	< 3.0	< 2.5	< 2.6	< 2.5	< 2.5	< 5
Barium	17.0	22.0	16	18.5	58	11	28.3	23	10.6	13	15.8	17	15	18.5
Beryllium	< 0.30	< 0.31	< 0.26	< 0.27	< 0.25	< 0.5	< 0.5	< 0.28	< 0.30	< 0.25	< 0.26	< 0.25	< 0.5	< 0.5
Cadmium	< 0.30	< 0.31	< 0.26	< 0.27	< 0.25	< 0.5	< 0.5	< 0.28	< 0.30	< 0.25	< 0.26	< 0.25	< 0.5	< 0.5
Chromium	2.7	2.1	1.4	2.2	3.8	1.9	< 0.5	< 1.4	< 1.2	< 1.0	1.2	< 1.0	< 1	< 0.5
Copper	1.3	1.3	< 1	1.1	2.6	< 1	1.5	1.1	< 1.2	< 1.0	< 1	1.6	< 1	< 0.5
Lead	8.2	8.1	6.6	9.7	13	6.9	< 5	6.5	5.6	6.7	7.4	6.6	5.4	< 5
Mercury	< 0.049	< 0.049	< 0.042	< 0.043	< 0.040	< 0.04	0.03	< 0.045	< 0.048	< 0.041	< 0.041	< 0.040	< 0.04	0.04
Nickel	< 1.2	< 1.2	< 1.0	1.1	< 1.0	3.5	< 0.5	< 1.1	< 1.2	< 1.0	< 1	< 1.0	2.5	< 0.5
Selenium	< 6.1	< 6.2	< 5.2	< 5.4	< 5.0	< 0.5	< 5	< 5.7	< 6.1	< 5.1	< 5.2	< 5.0	< 5	< 5
Silver	< 0.6	< 0.62	< 0.52	< 0.54	< 0.50	< 0.5	< 0.5	< 0.57	< 0.61	< 0.51	< 0.52	< 0.50	< 0.5	< 0.5
Thallium	< 3.0	< 3.1	< 2.6	< 2.7	< 2.5	< 2.5	< 5	< 2.8	< 3.0	< 2.5	< 2.6	< 2.5	< 2.5	< 5
Vanadium	5.9	4.5	3.4	5.0	13	6.9	3.6	2.8	2.1	1.9	2.7	1.5	1.4	1.91
Zinc	3.5	3.7	1.7	2.2	5.7	6.4	8.78	5.8	2.4	2.1	2.9	7.8	4.7	12.3
Total Solids (wt%)	82.0	80.9	96	92.4	83.5	73.4	82.0	88.0	82.5	98.4	96.6	91.2	82.6	86.5

Notes:
All data given in milligrams per kilogram (mg/kg).
<#.## indicates result is below the practical quantitation limit (PQL) shown.

TABLE B-1
HISTORICAL SOIL ANALYTICAL DATA
METAL CONSTITUENTS
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S07-							S08-						
Sample Date	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
METALS														
Arsenic	< 6.1	< 5.9	< 5.4	< 5.5	< 5.0	< 0.58	< 5	< 6.2	< 6.8	< 5.5	< 5.7	< 5.0	< 0.53	< 5
Antimony	< 3.0	< 3.0	< 2.7	< 2.8	< 2.5	< 2.9	< 5	< 3.1	< 3.4	< 2.8	< 2.9	< 2.5	< 2.7	< 5
Barium	14	9.3	10.2	10.5	8.5	9.2	8.4	20	38.3	21.0	26.0	45	71	23.2
Beryllium	< 0.30	< 0.30	< 0.27	< 0.28	< 0.25	< 0.5	< 0.50	< 0.31	< 0.34	< 0.28	< 0.29	< 0.25	< 0.5	< 0.5
Cadmium	< 0.30	< 0.30	< 0.27	< 0.28	0.31	< 0.5	< 0.5	< 0.31	< 0.34	< 0.28	< 0.29	0.55	< 0.5	< 0.5
Chromium	2.8	2.4	2.2	3.6	1.3	1.7	< 0.5	6.2	7.1	4.5	5.8	2.1	1.9	3
Copper	2.8	1.4	1.4	1.5	< 1.0	1.8	< 0.5	3.1	3.8	2.8	3.2	7.7	2.3	2.8
Lead	7.9	5.4	6.6	6.6	6.1	6.2	< 5	13	17.1	9.6	14.8	16	12	< 5
Mercury	< 0.049	< 0.047	< 0.043	< 0.044	< 0.040	< 0.04	0.04	< 0.05	< 0.054	< 0.044	< 0.046	< 0.040	0.097	0.06
Nickel	< 1.2	< 1.2	< 1.1	< 1.1	< 1.0	1.4	1.5	1.5	2.0	< 1.1	1.4	1.4	2.2	1.6
Selenium	< 6.1	< 5.9	< 5.4	< 5.5	< 5.0	< 5	< 5	< 6.2	< 6.8	< 5.5	< 5.7	< 5.0	< 5	< 5
Silver	< 0.61	< 0.59	< 0.54	< 0.55	< 0.50	< 0.58	< 0.5	< 0.62	< 0.68	< 0.55	< 0.57	< 0.50	< 0.53	< 0.5
Thallium	< 3.0	< 3.0	< 2.7	< 2.8	< 2.5	< 2.9	< 5	< 3.1	< 3.4	< 2.8	< 2.9	< 2.5	< 2.7	< 5
Vanadium	8.1	6.6	6.7	10.1	6.1	6.1	5.7	14	15.1	12.3	14.5	6.8	4.6	14.3
Zinc	4.0	4.2	2	2.9	1.6	14	9	10	10.1	5.2	10.0	10	15	11.7
Total Solids (wt%)	82.0	84.4	92.1	90.7	91.9	64.6	82.5	80.0	73.8	90.7	87.0	88.1	73.5	72.5

Notes:
All data given in milligrams per kilogram (mg/kg).
<#.## indicates result is below the practical quantitation limit (PQL) shown.

TABLE B-1
HISTORICAL SOIL ANALYTICAL DATA
METAL CONSTITUENTS
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S09-							S10-						
Sample Date	0802	0701	0700	799	898	797	796	0802	0701	0700	799	898	797	796
METALS														
Arsenic	< 5.8	< 6.2	< 5.2	< 5.2	< 5.0	< 5	< 5	< 5.6	< 6.0	< 5.2	< 5.3	< 5.0	< 5	< 5
Antimony	< 2.9	< 3.1	< 2.6	< 2.6	< 2.5	< 2.5	< 5	< 2.8	< 3.0	< 2.6	< 2.7	< 2.5	< 52.5	< 5
Barium	40	22.8	23.5	34.1	29	25	35	15	20.0	32.1	27.5	16	16	19.8
Beryllium	< 0.29	< 0.31	< 0.26	< 0.26	< 0.25	< 0.5	< 0.5	< 0.28	< 0.30	< 0.26	< 0.27	< 0.25	< 0.5	< 0.5
Cadmium	< 0.29	< 0.31	< 0.26	< 0.26	0.55	< 0.5	< 0.5	< 0.28	< 0.30	< 0.26	< 0.27	0.31	< 0.5	< 0.5
Chromium	3.4	2.0	1.7	2.9	5.6	1.2	3.1	3.0	2.7	5.1	3.0	1.9	3	2.7
Copper	2.6	1.3	1.1	1.8	9.5	< 1	6.2	< 1.1	1.3	2.7	1.6	< 1.0	< 1	1.5
Lead	8.5	7.0	8.8	8.8	10	6.8	< 5	6.5	7.2	7.5	8.7	4.8	4.5	< 5
Mercury	< 0.046	< 0.050	< 0.042	< 0.042	< 0.040	< 0.04	0.04	< 0.045	< 0.048	< 0.041	< 0.043	< 0.040	< 0.04	0.04
Nickel	1.7	< 1.2	< 1	1.2	4.5	2.3	4.2	< 1.1	< 1.2	1.1	< 1.1	< 1.0	1.9	< 0.5
Selenium	< 5.8	< 6.2	< 5.2	< 5.2	< 5.0	< 5	< 5	< 5.6	< 6.0	< 5.2	< 5.3	< 5.0	< 5	< 5
Silver	< 0.58	< 0.62	< 0.52	< 0.52	< 0.50	< 0.5	< 0.5	< 0.56	< 0.60	< 0.53	< 0.53	< 0.50	< 0.5	< 0.5
Thallium	< 2.9	< 3.1	< 2.6	< 2.6	< 2.5	< 2.5	< 5	< 2.8	< 3.0	< 2.6	< 2.7	< 2.5	< 2.5	< 5
Vanadium	7.1	4.6	4.5	6.8	5.9	3.5	5.5	6.7	5.5	13.8	7.4	5.8	5.4	8.8
Zinc	8.3	5.2	3.4	7.1	35	6.5	9.2	3.2	3.7	5.4	4.1	1.9	6.2	5.9
Total Solids (wt%)	86.0	80.1	95.4	95.4	91.3	77.6	83.3	88.0	83.0	97	93.5	94.4	79.8	85.0

Notes:
All data given in milligrams per kilogram (mg/kg).
<#.## indicates result is below the practical quantitation limit (PQL) shown.

TABLE B-1
HISTORICAL SOIL ANALYTICAL DATA
METAL CONSTITUENTS
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S11-							S12-						
Sample Date	0802	0701	0700	799	898	797	796	0802	0701	0700	0799	0898	0797	0796
METALS														
Arsenic	< 6.4	< 6.2	< 5.6	< 5.6	< 5	< 5.47	< 5	< 6.1	< 6.1	< 5.3	< 5.2	< 5.0	< 0.58	< 5
Antimony	< 3.2	< 3.1	< 2.8	< 2.8	< 2.5	< 2.8	< 5	< 3.1	< 3.1	< 2.6	< 2.6	< 2.5	< 2.9	< 5
Barium	22	20.1	35	24.1	19	25	13.6	9.7	9.1	10.3	10.1	12	13	10.5
Beryllium	< 0.32	< 0.31	< 0.28	< 0.28	< 0.25	< 0.5	< 0.5	< 0.31	< 0.31	< 0.26	< 0.26	< 0.25	< 0.5	< 0.5
Cadmium	< 0.32	< 0.31	< 0.28	< 0.28	0.28	< 0.5	< 0.5	< 0.31	< 0.31	< 0.26	< 0.26	0.32	< 0.5	< 0.5
Chromium	2.5	2.7	2	2.4	1.3	1.4	0.9	2.1	1.9	1.2	1.6	1.5	1.8	< 0.5
Copper	1.7	1.5	2.4	2.4	< 1	1.9	1.4	< 1.2	< 1.2	< 1.1	< 1.0	< 1.0	1.5	1.3
Lead	6.8	6.5	8.1	8.7	6.6	8.2	< 5	6.4	5.9	5.6	5.6	5.6	7.1	< 5
Mercury	< 0.051	< 0.050	< 0.045	< 0.044	< 0.04	0.048	0.05	< 0.049	< 0.049	< 0.042	< 0.042	< 0.040	< 0.04	0.02
Nickel	< 1.3	< 1.2	1.3	< 1.1	< 1	3.4	1.4	< 1.2	< 1.2	< 1.1	< 1.0	< 1.0	< 1.2	< 0.5
Selenium	< 6.4	< 6.2	< 5.6	< 5.6	< 5	< 5	< 5	< 6.1	< 6.1	< 5.3	< 5.2	< 5.0	< 5	< 5
Silver	< 0.64	< 0.62	< 0.56	< 0.56	< 0.5	< 0.57	< 0.5	< 0.61	< 0.61	< 0.53	< 0.52	< 0.50	< 0.58	< 0.5
Thallium	< 3.2	< 3.1	< 2.8	< 2.8	< 2.5	< 2.8	< 5	< 3.1	< 3.1	< 2.6	< 2.6	< 2.5	< 2.9	< 5
Vanadium	6.5	6.8	5.8	6.8	5.4	4.2	6.3	4.9	4.7	3.5	4.0	4.6	5.9	4.3
Zinc	4.8	4.9	6	4.8	4.9	7.7	6.1	3.4	3.0	1.9	2.8	2.4	8.1	5.1
Total Solids (wt%)	78.0	80.4	89.6	90.1	88.2	68.5	82.9	81.0	81.6	81.6	96.0	90.8	69.2	86.5

Notes:
All data given in milligrams per kilogram (mg/kg).
<# ## indicates result is below the practical quantitation limit (PQL) shown.

TABLE B-1
HISTORICAL SOIL ANALYTICAL DATA
METAL CONSTITUENTS
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S13-							S14-						
Sample Date	0802	0701	0700	799	898	797	796	0802	0701	0700	799	898	797	796
METALS														
Arsenic	< 6.0	< 6.3	< 5.2	< 5.1	< 5.0	6.2	< 5	< 6.0	< 6.4	< 5.3	< 5.4	< 5.0	< 5	< 5
Antimony	< 3.0	< 3.2	< 2.6	< 2.6	< 2.5	< 2.5	< 5	< 3.0	< 3.2	< 2.6	< 2.7	< 2.5	< 2.5	< 5
Barium	39	31.3	34.4	30.8	28	27	26.7	52	57.2	57.6	67.0	53	62	66.2
Beryllium	< 0.30	< 0.32	< 0.26	< 0.26	< 0.25	< 0.5	< 0.5	0.36	0.40	0.28	< 0.31	< 0.25	< 0.5	< 0.5
Cadmium	< 0.30	< 0.32	< 0.26	< 0.26	0.59	< 0.5	< 0.5	< 0.30	< 0.32	< 0.26	< 0.27	0.47	< 0.5	< 0.5
Chromium	4.4	5.5	3.1	3.6	2.2	2.7	2.4	9.6	7.6	3.9	6.3	3.2	3.2	2.3
Copper	3.1	3.8	2.6	6.6	4.2	5	1.9	7.1	11.1	24.4	20.5	8.4	4.8	5.1
Lead	8.5	9.5	8.4	11.8	8.8	6.3	< 5	16	20.9	39	34.4	12	11	9
Mercury	< 0.048	< 0.050	< 0.042	< 0.041	< 0.040	< 0.04	0.02	< 0.048	< 0.051	< 0.042	< 0.043	< 0.040	< 0.04	0.03
Nickel	1.4	1.5	< 1.0	1.1	< 1.0	< 1	1.8	1.9	1.6	1.3	1.8	< 1.0	< 1	2.2
Selenium	< 6.0	< 6.3	< 5.2	< 5.1	< 5.0	< 5	< 5	< 6.0	< 6.4	< 5.3	< 5.4	< 5.0	< 5	< 5
Silver	< 0.60	< 0.63	< 0.52	< 0.51	< 0.50	< 0.5	< 0.5	< 0.60	< 0.64	< 0.53	< 0.54	< 0.50	< 0.5	< 0.5
Thallium	< 3.0	< 3.2	< 2.6	< 2.6	< 2.5	< 2.5	< 5	< 3.0	< 3.2	< 2.6	< 2.7	< 2.5	< 2.5	< 5
Vanadium	9.3	11.9	8.4	8.5	7.9	7.1	8.9	17	15.1	8.8	13.9	12	12	10.5
Zinc	7.4	8.4	4.1	8.0	4.1	8.2	6.1	12	11.1	8.1	13.6	70	11	11.3
Total Solids (wt%)	83.0	79.3	95.4	97.4	93.1	96.3	92.4	83.0	78.2	94.9	92.9	83.3	91.2	80.2

Notes:
All data given in milligrams per kilogram (mg/kg).
<# ## indicates result is below the practical quantitation limit (PQL) shown.

TABLE B-1
HISTORICAL SOIL ANALYTICAL DATA
METAL CONSTITUENTS
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S15-							S16-						
Sample Date	0802	0701	0700	799	898	0797	796	0802	0701	0700	0799	0898	0797	0796
METALS														
Arsenic	< 7.1	< 6.8	< 5.4	< 5.4	< 5.0	< 5	< 5	< 6.1	< 5.6	< 5.1	< 5.2	< 5	< 5	< 5
Antimony	< 3.6	< 3.4	< 2.7	< 2.7	< 2.5	< 2.5	< 5	< 3.1	< 2.8	< 2.5	< 2.6	< 2.5	3.8	< 5
Barium	48	54.6	42.8	31.3	28	25	55.5	54	59.0	40.4	42.1	36	48	39.4
Beryllium	< 0.36	< 0.34	< 0.27	< 0.27	< 0.25	< 0.5	< 0.5	< 0.31	< 0.28	< 0.25	< 0.26	< 0.25	< 0.5	< 0.5
Cadmium	< 0.36	< 0.34	< 0.27	< 0.24	0.50	< 0.5	< 0.5	< 0.31	< 0.28	< 0.25	< 0.26	0.47	< 0.5	< 0.5
Chromium	3.4	4.0	2	2.2	2.9	1	0.8	8.4	7.3	3.5	5.6	3.1	3.1	2.2
Copper	7.6	11.8	8.1	4.8	2.1	3	7.2	24	17.8	14.2	20.3	11	5.7	3.8
Lead	17	23.5	22.3	11.8	9.6	6.9	16	26	26.2	16.2	17.9	9.5	8.4	7
Mercury	< 0.057	< 0.055	< 0.043	< 0.043	< 0.040	< 0.04	0.03	< 0.049	< 0.045	< 0.041	< 0.041	< 0.04	< 0.04	0.03
Nickel	1.9	2.1	1.4	1.1	< 1.0	< 1	3.5	2.9	2.4	1.3	2.7	1.4	1.5	2.6
Selenium	< 7.1	< 6.8	< 5.4	< 5.4	< 5.0	< 5	< 5	< 6.1	< 5.6	< 5.1	< 5.2	< 5	< 5	< 5
Silver	< 0.71	< 0.68	< 0.54	< 0.54	< 0.50	< 0.5	< 0.5	< 0.61	< 0.56	< 0.51	< 0.52	< 0.5	< 0.5	< 0.5
Thallium	< 3.6	< 3.4	< 2.7	< 2.7	< 2.5	< 2.5	< 5	< 3.1	< 2.8	< 2.5	< 2.6	< 2.5	< 2.5	< 5
Vanadium	7.6	7.4	5.7	5.9	10	3.9	6.1	16	14.2	8.8	12.1	11	8.7	12.6
Zinc	9.5	11.7	6.1	4.7	24	5.1	10.6	15	13.3	5.9	10.1	7.6	12	12.2
Total Solids (wt%)	70.0	73.3	92.3	92.1	85.4	93.2	73.9	81.0	88.6	98.2	96.7	95.2	97	84.7

Notes.
All data given in milligrams per kilogram (mg/kg).
<#.## indicates result is below the practical quantitation limit (PQL) shown.

TABLE B-1
HISTORICAL SOIL ANALYTICAL DATA
METAL CONSTITUENTS
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S17-							OFF1-							
Sample Date	0802	0701	0700	799	898	797	796	0802	0701	0700	799	898	797	796	596
METALS															
Arsenic	< 5.7	< 6.4	< 5.3	< 5.3	< 5.0	< 5	< 5	< 5.6	< 5.9	< 5.5	< 5.6	< 5.0	< 6.2	< 5	< 5
Antimony	< 2.9	< 3.2	< 2.6	< 2.6	< 2.5	< 2.5	< 5	< 2.8	< 3.0	< 2.7	< 2.8	< 2.5	< 3.1	< 5	< 5
Barium	70	63.4	57.0	58.0	40	19	60.0	57	47.5	44.5	46.1	12	57.0	66.8	67.4
Beryllium	0.31	0.37	0.27	0.33	< 0.25	< 0.5	< 0.5	0.29	< 0.30	0.38	0.39	< 0.25	< 0.5	< 0.5	< 0.5
Cadmium	< 0.29	< 0.32	< 0.26	< 0.26	0.52	< 0.5	< 0.5	< 0.28	< 0.30	< 0.27	< 0.28	< 0.25	0.56	< 0.5	< 0.5
Chromium	8.6	8.5	4.1	10.3	1.8	2	4.7	18	16.9	11.7	16.0	8.3	10.0	< 0.5	12.8
Copper	10	5.6	7	5.4	2.2	18	4.0	4.4	5.4	3.4	5.3	8.1	2.5	4.9	4.6
Lead	16	11.0	12.5	11.4	5.7	13	8.0	21	11.6	14.9	9.3	9.2	11.0	< 5	11.0
Mercury	< 0.046	< 0.051	< 0.042	< 0.042	< 0.040	< 0.04	0.03	< #####	< 0.047	< 0.044	< 0.045	< 0.040	< 0.04	0.10	0.05
Nickel	2.5	2.0	1.7	6.6	< 1.0	1.3	2.7	6.6	6.0	4.1	5.9	< 1.0	2.7	6.9	5.6
Selenium	< 5.7	< 6.4	< 5.3	< 5.3	< 5.0	< 5	< 5	< 5.6	< 5.9	< 5.5	< 5.6	< 5.0	< 5	< 5	< 5
Silver	< 0.57	< 0.64	< 0.53	< 0.53	< 0.50	< 0.5	< 0.5	< 0.56	< 0.59	< 0.55	< 0.56	< 0.50	< 0.62	< 0.5	< 0.5
Thallium	< 2.9	< 3.2	< 2.6	< 2.6	< 2.5	< 2.5	< 5	< 2.8	< 3.0	< 2.7	< 2.8	< 2.5	< 3.1	< 5	< 5
Vanadium	18	17.3	9.8	18.0	7.4	6.2	16.4	24	23.5	17.6	22.7	7.1	15.0	28.1	17.3
Zinc	16	14.3	7.8	13.5	6.5	8.1	12.9	15	15.5	10	14.2	250	20.0	18.6	21.0
Total Solids (wt%)	87.0	78.4	94.5	94.8	92.6	79.5	83.4	89.0	84.6	91.1	89.3	98.4	64.2	76.6	76.5

Notes:
All data given in milligrams per kilogram (mg/kg).
<#.## indicates result is below the practical quantitation limit (PQL) shown.

TABLE B-1
HISTORICAL SOIL ANALYTICAL DATA
METAL CONSTITUENTS
CLEAN HARBORS COLFAX, LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	OFF2-								OFF3-							
Sample Date	0802	0701	0700	0799	0898	0797	0796	0596	0802	0701	0700	799	898	797	796	596
METALS																
Arsenic	< 5.6	< 5.4	< 5.1	< 5.2	< 5.0	5.5	< 5	< 5	< 6.2	< 5.2	10.0	7.7	< 5.0	< 5.1	< 5.00	< 5.00
Antimony	< 2.8	< 2.7	< 2.5	< 2.6	< 2.5	< 2.5	< 5	< 5	< 3.1	< 2.6	< 2.8	< 2.9	< 2.5	< 2.5	< 5.00	< 5.00
Barium	38	44.0	36.4	24.8	49	33.0	48.6	59.2	31	24.5	129	129	13	12.0	11.7	22.1
Beryllium	< 0.28	< 0.27	0.31	< 0.26	0.27	< 0.5	< 0.5	< 0.5	< 0.31	< 0.26	1.3	1.1	< 0.25	< 0.5	< 0.50	< 5.00
Cadmium	< 0.28	< 0.27	< 0.25	< 0.26	0.32	< 0.5	< 0.5	< 0.5	< 0.31	< 0.26	0.32	0.37	< 0.25	< 0.5	< 0.50	< 0.50
Chromium	7.3	17.5	6.7	6.3	11	7.8	4.6	14.8	2.8	2.0	18.2	20.4	2.0	< 1	1.08	1.7
Copper	1.7	1.8	1.4	1.1	2.3	1.7	2.6	3.2	1.5	1.1	7.2	6.9	8.4	1.2	< 0.50	< 0.50
Lead	5.9	5.9	5.9	5.3	12	5.0	6.0	13.0	7.5	7.3	39.6	32.5	17	7.3	< 5.00	13.0
Mercury	< 0.045	< 0.043	< 0.040	0.068	< 0.040	< 0.04	0.17	0.13	< ####	< 0.041	0.066	0.052	0.047	0.05	0.05	0.05
Nickel	2.6	2.5	1.7	1.4	3.4	1.2	2.8	2.3	< 1.2	< 1.0	8.4	10.0	1.3	1.4	2.0	< 0.50
Selenium	< 5.6	< 5.4	< 5.1	< 5.2	5.6	< 5	< 5	< 5	< 6.2	< 5.2	< 5.7	< 5.8	< 5.0	< 5	< 5.00	< 5.00
Silver	< 0.56	< 0.54	< 0.51	< 0.52	< 0.50	< 0.51	< 0.5	< 0.5	< 0.62	< 0.52	< 0.57	< 0.58	< 0.50	< 0.51	< 0.50	< 0.50
Thallium	< 2.8	< 2.7	< 2.5	< 2.6	< 2.5	< 2.5	< 5	< 5	< 3.1	< 2.6	< 2.8	< 2.9	< 2.5	< 2.5	< 5.00	< 5.00
Vanadium	9.2	15.5	11.3	7.0	18	11.0	11.5	16.1	6.4	4.5	45.6	< 1.2	6.2	2.8	4.0	4.2
Zinc	6.6	4.0	2.7	2.8	56	10.0	8.3	11.9	4.2	4.8	14.8	20.0	180	11.0	7.08	8.8
Total Solids (wt%)	89.0	92.0	99.0	95.8	87.4	76.2	86.2	89.9	81.0	96.6	88.4	86.6	88.2	72.1	88.3	92.3

Notes:
All data given in milligrams per kilogram (mg/kg).
<#.## indicates result is below the practical quantitation limit (PQL) shown

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S01-							S02-						
Sample Date	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
PARAMETERS														
Acetone	< 0.011	< 0.011	< 0.011	< 0.010	< 0.010	0.016	0.1	< 0.012	< 0.011	< 0.010	< 0.010	< 0.010	0.025	0.07 J
Acrolein	< 0.11	< 0.11	< 0.11	< 0.10	< 0.10	< 0.1	< 0.1	< 0.12	< 0.11	< 0.10	< 0.10	< 0.10	< 0.1	< 0.1
Acrylonitrile	< 0.053	< 0.055	< 0.055	< 0.052	< 0.051	< 0.06	< 0.1	< 0.0600	< 0.054	< 0.051	< 0.052	< 0.051	< 0.053	< 0.1
Benzene	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.053	< 0.005
Bromochloromethane	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.053	< 0.005
Bromodichloromethane	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
Bromoform	< 0.0053	< 0.0055	< 0.011	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.010	< 0.0052	< 0.0051	< 0.0053	< 0.005
Bromomethane	< 0.011	< 0.0011	< 0.0055	< 0.010	< 0.010	< 0.01	< 0.01	< 0.0120	< 0.011	< 0.0051	< 0.010	< 0.010	< 0.01	< 0.01
Carbon Disulfide	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
Carbon Tetrachloride	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
Chlorobenzene	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
Chlorodibromomethane	< 0.0053	< 0.0055	< 0.011	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.010	< 0.0052	< 0.0051	< 0.0053	< 0.005
Chloroethane	< 0.011	< 0.011	< 0.055	< 0.010	< 0.010	< 0.01	< 0.005	< 0.012	< 0.011	< 0.051	< 0.010	< 0.010	< 0.01	< 0.005
2-Chloroethyl Vinyl Ether	< 0.053	< 0.055	< 0.0055	< 0.010	< 0.010	< 0.012	< 0.01	< 0.0600	< 0.054	< 0.0051	< 0.010	< 0.010	< 0.011	< 0.01
Chloroform	< 0.0053	< 0.011	< 0.011	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.010	< 0.0052	< 0.0051	< 0.0053	< 0.005
Choromethane	< 0.011	< 0.011	< 0.011	< 0.010	< 0.010	< 0.01	< 0.01	< 0.012	< 0.011	< 0.010	< 0.010	< 0.010	< 0.01	< 0.01
Dibromomethane	< 0.011	< 0.011	< 0.011	< 0.010	< 0.010	< 0.012	< 0.005	< 0.012	< 0.011	< 0.010	< 0.010	< 0.010	< 0.011	< 0.005
1,4-Dichloro-2-Butene	< 0.011	< 0.011	< 0.011	< 0.010	< 0.20	< 0.024	< 0.1	< 0.012	< 0.011	< 0.010	< 0.010	< 0.20	< 0.021	< 0.1
Dichlorodiflouromethane	< 0.011	< 0.011	< 0.0055	< 0.010	< 0.10	< 0.012	< 0.005	< 0.012	< 0.011	< 0.0051	< 0.010	< 0.10	< 0.011	< 0.005
1,1-Dichloroethane	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
1,2-Dichloroethane	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
1,1-Dichloroethene	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
Trans-1,2-Dichloroethene	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
1,2-Dichloropropane	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S01-							S02-						
Sample Date	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
PARAMETERS														
Cis-1,3-Dichloropropene	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
Trans-1,3-Dichloropropene	< 0.0053	< 0.0055	< 1.1	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 1	< 0.0052	< 0.0051	< 0.0053	< 0.005
Ethanol	< 1.1	< 1.1	< 0.0055	< 0.52	< 1.0	< 1	< 0.1	< 1.2	< 1.1	< 0.0051	< 0.52	< 1.0	< 1	< 0.1
Ethylbenzene	< 0.0053	< 0.0055	< 0.011	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.010	< 0.0052	< 0.0051	< 0.0053	< 0.005
Ethyl Methacrylate	< 0.0053	< 0.0055	< 0.011	< 0.0052	< 0.051	< 0.06	< 0.005	< 0.0060	< 0.0054	< 0.010	< 0.0052	< 0.051	< 0.053	< 0.005
2-Hexanone	< 0.011	< 0.011	< 0.0055	< 0.010	< 0.010	< 0.012	< 0.05	< 0.012	< 0.011	< 0.0051	< 0.010	< 0.010	< 0.011	< 0.05
Iodmethane	< 0.011	< 0.011	< 0.011	< 0.010	< 0.010	< 0.012	< 0.005	< 0.012	< 0.011	< 0.010	< 0.010	< 0.010	< 0.011	< 0.005
Methylene Chloride	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	0.014	< 0.01	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	0.021	< 0.01
4-Methyl-2-Pentanone	< 0.011	< 0.011	< 0.0055	< 0.010	< 0.010	< 0.012	< 0.05	< 0.012	< 0.010	< 0.0051	< 0.010	< 0.010	< 0.011	< 0.05
Styrene	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
1,1,2,2-Tetrachloroethane	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
Tetrachloroethene	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
Toluene	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
1,1,1-Trichloroethane	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
1,1,2-Trichloroethane	< 0.0053	< 0.0055	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0053	< 0.005
Trichloroethene	< 0.0053	< 0.0055	< 0.011	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.010	< 0.0052	< 0.0051	0.009	< 0.005
Trichloroflouromethane	< 0.0053	< 0.006	< 0.011	--	< 0.0051	< 0.006	< 0.005	< 0.0060	< 0.0054	< 0.010	--	< 0.0051	< 0.0053	< 0.005
1,2,3-Trichloropropane	< 0.011	< 0.011	< 0.011	< 0.010	< 0.010	< 0.012	< 0.005	< 0.012	< 0.011	< 0.010	< 0.010	< 0.010	< 0.011	< 0.005
Vinyl Acetate	< 0.011	< 0.011	< 0.0055	< 0.010	< 0.010	< 0.012	< 0.05	< 0.012	< 0.011	< 0.0051	< 0.010	< 0.010	< 0.011	< 0.05
Vinyl Chloride	< 0.011	< 0.011	< 0.010	< 0.010	< 0.01	< 0.01	< 0.14	< 0.012	< 0.011	< 0.010	< 0.01	< 0.01	< 0.14	< 0.14
Total Xylene	< 0.0053	< 0.0055	< 0.0052	< 0.0051	< 0.006	< 0.005	< 0.28	< 0.0060	< 0.0054	< 0.0051	< 0.0053	< 0.005	< 0.28	< 0.28

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S03-							S04-						
Sample Date	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
PARAMETERS														
Acetone	< 0.012	< 0.012	< 0.010	< 0.011	< 0.010	< 0.013	0.2	< 0.011	< 0.012	< 0.011	< 0.011	< 0.010	0.08	0.1
Acrolein	< 0.12	< 0.12	< 0.10	< 0.11	< 0.10	< 0.1	< 0.1	< 0.11	< 0.12	< 0.11	< 0.11	< 0.10	< 0.1	< 0.1
Acrylonitrile	< 0.058	< 0.059	< 0.052	< 0.054	< 0.051	< 0.064	< 0.1	< 0.056	< 0.060	< 0.053	< 0.054	< 0.051	< 0.066	< 0.1
Benzene	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
Bromochloromethane	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0052	< 0.0051	< 0.006	< 0.005
Bromodichloromethane	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
Bromoform	< 0.0058	< 0.0059	< 0.010	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.011	< 0.0054	< 0.0051	< 0.0066	< 0.005
Bromomethane	< 0.012	< 0.012	< 0.0052	< 0.011	< 0.010	< 0.01	< 0.01	< 0.011	< 0.012	< 0.0053	< 0.011	< 0.010	< 0.01	< 0.01
Carbon Disulfide	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
Carbon Tetrachloride	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
Chlorobenzene	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
Chlorodibromomethane	< 0.0058	< 0.0059	< 0.010	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.011	< 0.0054	< 0.0051	< 0.0066	< 0.005
Chloroethane	< 0.012	< 0.012	< 0.010	< 0.011	< 0.010	< 0.01	< 0.005	< 0.011	< 0.012	< 0.011	< 0.011	< 0.010	< 0.01	< 0.005
2-Chloroethyl Vinyl Ether	< 0.058	< 0.059	< 0.0052	< 0.011	< 0.010	< 0.013	< 0.01	< 0.056	< 0.060	< 0.0053	< 0.011	< 0.010	< 0.013	< 0.01
Chloroform	< 0.0058	< 0.0059	< 0.010	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.011	< 0.0054	< 0.0051	< 0.0066	< 0.005
Choromethane	< 0.012	< 0.012	< 0.010	< 0.011	< 0.010	< 0.01	< 0.01	< 0.011	< 0.012	< 0.011	< 0.011	< 0.010	< 0.01	< 0.01
Dibromomethane	< 0.012	< 0.012	< 0.010	< 0.011	< 0.010	< 0.013	< 0.005	< 0.011	< 0.012	< 0.011	< 0.011	< 0.010	< 0.013	< 0.005
1,4-Dichloro-2-Butene	< 0.012	< 0.012	< 0.010	< 0.011	< 0.20	< 0.026	< 0.1	< 0.011	< 0.012	< 0.011	< 0.010	< 0.20	< 0.026	< 0.1
Dichlorodiflouromethane	< 0.012	< 0.012	< 0.0052	< 0.01	< 0.10	< 0.013	< 0.005	< 0.011	< 0.012	< 0.0053	< 0.011	< 0.10	< 0.013	< 0.005
1,1-Dichloroethane	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
1,2-Dichloroethane	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
1,1-Dichloroethene	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
Trans-1,2-Dichloroethene	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
1,2-Dichloropropane	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0052	< 0.0051	< 0.0066	< 0.005

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg)
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S03-							S04-						
Sample Date / PARAMETERS	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
Cis-1,3-Dichloropropene	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
Trans-1,3-Dichloropropene	< 0.0058	< 0.0059	< 0.52	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.53	< 0.0054	< 0.0051	< 0.0066	< 0.005
Ethanol	< 1.2	< 1.2	< 0.0052	< 0.54	< 1.0	< 1	< 0.1	< 1.1	< 1.2	< 0.0053	< 0.52	< 1.0	< 1	< 0.1
Ethylbenzene	< 0.0058	< 0.0059	< 0.010	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.011	< 0.0054	< 0.0051	< 0.0066	< 0.005
Ethyl Methacrylate	< 0.0058	< 0.0059	< 0.010	< 0.0054	< 0.051	< 0.064	< 0.005	< 0.0056	< 0.0060	< 0.011	< 0.0054	< 0.051	< 0.066	< 0.005
2-Hexanone	< 0.012	< 0.012	< 0.0052	< 0.011	< 0.010	< 0.013	< 0.05	< 0.011	< 0.012	< 0.0053	< 0.011	< 0.010	< 0.013	< 0.05
Iodmethane	< 0.012	< 0.012	< 0.010	< 0.011	< 0.010	< 0.013	< 0.005	< 0.011	< 0.012	< 0.011	< 0.011	< 0.010	< 0.007	< 0.005
Methylene Chloride	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.01	0.0067	< 0.0060	< 0.0053	< 0.0054	< 0.0051	0.017	< 0.01
4-Methyl-2-Pentanone	< 0.012	< 0.012	< 0.0052	< 0.011	< 0.010	< 0.013	< 0.05	< 0.011	< 0.012	< 0.0053	< 0.011	< 0.010	< 0.013	< 0.05
Styrene	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
1,1,2,2-Tetrachloroethane	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
Tetrachloroethene	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
Toluene	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
1,1,1-Trichloroethane	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
1,1,2-Trichloroethane	< 0.0058	< 0.0059	< 0.0052	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0053	< 0.0054	< 0.0051	< 0.0066	< 0.005
Trichloroethene	< 0.0058	< 0.0059	< 0.010	< 0.0054	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.011	< 0.0054	< 0.0051	< 0.0066	< 0.005
Trichloroflouromethane	< 0.0058	< 0.0059	< 0.010	--	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.011	--	< 0.0051	< 0.0066	< 0.005
1,2,3-Trichloropropane	< 0.012	< 0.012	< 0.010	< 0.011	< 0.010	< 0.013	< 0.005	< 0.011	< 0.012	< 0.011	< 0.011	< 0.010	< 0.013	< 0.005
Vinyl Acetate	< 0.012	< 0.012	< 0.0052	< 0.011	< 0.010	< 0.013	< 0.05	< 0.011	< 0.012	< 0.0053	< 0.011	< 0.010	< 0.013	< 0.05
Vinyl Chloride	< 0.012	< 0.012	< 0.01	< 0.01	< 0.14	< 0.011	< 0.010	< 0.011	< 0.012	< 0.01	< 0.14	< 0.14	< 0.010	< 0.010
Total Xylene	< 0.0058	< 0.0059	< 0.0064	< 0.005	< 0.28	< 0.0054	< 0.0051	< 0.0056	< 0.0060	< 0.005	< 0.28	< 0.28	< 0.0052	< 0.0051

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg)
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S05-							S06-						
Sample Date / PARAMETERS	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
Acetone	< 0.012	< 0.012	< 0.010	< 0.011	< 0.010	< 0.014	0.3	0.011	< 0.012	< 0.010	< 0.010	< 0.010	< 0.012	0.1
Acrolein	< 0.12	< 0.12	< 0.10	< 0.11	< 0.10	< 0.1	< 0.1	< 0.11	< 0.12	< 0.10	< 0.10	< 0.10	< 0.1	< 0.1
Acrylonitrile	< 0.061	< 0.062	< 0.052	< 0.054	< 0.051	< 0.068	< 0.1	< 0.057	< 0.061	< 0.051	< 0.052	< 0.051	< 0.061	< 0.1
Benzene	< 0.0061	< 0.0062	< 0.0052	< 0.0054	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
Bromochloromethane	< 0.0061	< 0.0062	< 0.0052	< 0.0054	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
Bromodichloromethane	< 0.0061	< 0.0062	< 0.0052	< 0.0054	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
Bromoform	< 0.0061	< 0.0062	< 0.010	< 0.0052	< 0.0051	< 0.0086	< 0.005	< 0.0057	< 0.0061	< 0.010	< 0.0052	< 0.0051	< 0.0061	< 0.005
Bromomethane	< 0.012	< 0.012	< 0.0052	< 0.010	< 0.010	< 0.01	< 0.01	< 0.011	< 0.012	< 0.0051	< 0.010	< 0.010	< 0.01	< 0.01
Carbon Disulfide	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
Carbon Tetrachloride	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
Chlorobenzene	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
Chlorodibromomethane	< 0.0061	< 0.0062	< 0.010	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.010	< 0.0052	< 0.0051	< 0.0061	< 0.005
Chloroethane	< 0.012	< 0.012	< 0.010	< 0.010	< 0.010	< 0.01	< 0.005	< 0.011	< 0.012	< 0.051	< 0.010	< 0.010	< 0.01	< 0.005
2-Chloroethyl Vinyl Ether	< 0.061	< 0.062	< 0.0052	< 0.010	< 0.010	< 0.014	< 0.01	< 0.057	< 0.061	< 0.0051	< 0.010	< 0.010	< 0.012	< 0.01
Chloroform	< 0.0061	< 0.0062	< 0.010	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.010	< 0.0052	< 0.0051	< 0.0061	< 0.005
Choromethane	< 0.012	< 0.012	< 0.010	< 0.010	< 0.010	< 0.01	< 0.01	< 0.011	< 0.012	< 0.010	< 0.010	< 0.010	< 0.01	< 0.01
Dibromomethane	< 0.012	< 0.012	< 0.010	< 0.010	< 0.010	< 0.014	< 0.005	< 0.011	< 0.012	< 0.010	< 0.010	< 0.010	< 0.012	< 0.005
1,4-Dichloro-2-Butene	< 0.012	< 0.012	< 0.010	< 0.011	< 0.20	< 0.027	< 0.1	< 0.011	< 0.012	< 0.010	< 0.010	< 0.20	< 0.024	< 0.1
Dichlorodiflouromethane	< 0.012	< 0.012	< 0.0052	< 0.010	< 0.10	< 0.014	< 0.005	< 0.011	< 0.012	< 0.0051	< 0.010	< 0.10	< 0.012	< 0.005
1,1-Dichloroethane	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
1,2-Dichloroethane	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
1,1-Dichloroethene	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
Trans-1,2-Dichloroethene	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
1,2-Dichloropropane	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

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TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S05-							S06-						
Sample Date / PARAMETERS	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
Cis-1,3-Dichloropropene	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
Trans-1,3-Dichloropropene	< 0.0061	< 0.0062	< 0.52	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 1	< 0.0052	< 0.0051	< 0.0061	< 0.005
Ethanol	< 1.2	< 1.2	< 0.0052	< 0.52	< 1.0	< 1	< 0.1	1.9	< 1.2	< 0.0051	< 0.52	< 1.0	< 1	< 0.1
Ethylbenzene	< 0.0061	< 0.0062	< 0.010	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.010	< 0.0052	< 0.0051	< 0.0061	< 0.005
Ethyl Methacrylate	< 0.0061	< 0.0062	< 0.010	< 0.0052	< 0.051	< 0.068	< 0.005	< 0.0057	< 0.0061	< 0.010	< 0.0052	< 0.051	< 0.061	< 0.005
2-Hexanone	< 0.012	< 0.012	< 0.0052	< 0.010	< 0.010	< 0.014	< 0.05	< 0.011	< 0.012	< 0.0051	< 0.010	< 0.010	< 0.012	< 0.05
Iodmethane	< 0.012	< 0.012	< 0.010	< 0.010	< 0.010	< 0.014	< 0.005	< 0.011	< 0.012	< 0.010	< 0.010	< 0.010	< 0.012	< 0.005
Methylene Chloride	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.01	0.0069	< 0.0061	< 0.0051	< 0.0052	< 0.0051	0.011	< 0.01
4-Methyl-2-Pentanone	< 0.012	< 0.012	< 0.0052	< 0.010	< 0.010	< 0.014	< 0.05	< 0.011	< 0.012	< 0.0051	< 0.010	< 0.010	< 0.012	< 0.05
Styrene	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
1,1,2,2-Tetrachloroethane	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
Tetrachloroethene	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
Toluene	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
1,1,1-Trichloroethane	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
1,1,2-Trichloroethane	< 0.0061	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.0051	< 0.0052	< 0.0051	< 0.0061	< 0.005
Trichloroethene	< 0.0061	< 0.0062	< 0.010	< 0.0052	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.010	< 0.0052	< 0.0051	0.007	< 0.005
Trichloroflouromethane	< 0.0061	< 0.0062	< 0.010	--	< 0.0051	< 0.0068	< 0.005	< 0.0057	< 0.0061	< 0.010	--	< 0.0051	< 0.0061	< 0.005
1,2,3-Trichloropropane	< 0.012	< 0.012	< 0.010	< 0.010	< 0.010	< 0.014	< 0.005	< 0.011	< 0.012	< 0.010	< 0.010	< 0.010	< 0.012	< 0.005
Vinyl Acetate	< 0.012	< 0.012	< 0.0052	< 0.010	< 0.010	< 0.014	< 0.05	< 0.011	< 0.012	< 0.0051	< 0.010	< 0.010	< 0.012	< 0.05
Vinyl Chloride	< 0.012	< 0.012	< 0.14	< 0.010	< 0.010	< 0.01	< 0.01	< 0.011	< 0.012	< 0.14	< 0.14	< 0.011	< 0.010	< 0.01
Total Xylene	< 0.0061	< 0.0062	< 0.28	< 0.0052	< 0.0051	0.0061	< 0.005	< 0.0057	< 0.0061	< 0.28	< 0.28	< 0.0055	< 0.0051	< 0.0077

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S07-							S08-						
Sample Date	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
PARAMETERS														
Acetone	< 0.012	< 0.012	< 0.011	< 0.011	< 0.010	< 0.015	0.2	< 0.012	< 0.014	0.011	< 0.011	< 0.010	< 0.014	0.2
Acrolein	< 0.12	< 0.12	< 0.11	< 0.11	< 0.10	< 0.1	< 0.1	< 0.12	< 0.14	< 0.11	< 0.11	< 0.10	< 0.1	< 0.1
Acrylonitrile	< 0.061	< 0.059	< 0.054	< 0.055	< 0.051	< 0.077	< 0.1	< 0.062	< 0.068	< 0.055	< 0.057	< 0.051	< 0.068	< 0.1
Benzene	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
Bromochloromethane	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
Bromodichloromethane	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
Bromoform	< 0.0061	< 0.0059	< 0.011	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.011	< 0.0057	< 0.0051	< 0.0068	< 0.005
Bromomethane	< 0.012	< 0.012	< 0.0054	< 0.011	< 0.010	< 0.01	< 0.01	< 0.012	< 0.014	< 0.0055	< 0.011	< 0.010	< 0.01	< 0.01
Carbon Disulfide	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
Carbon Tetrachloride	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
Chlorobenzene	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
Chlorodibromomethane	< 0.0061	< 0.0059	< 0.011	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.011	< 0.0057	< 0.0051	< 0.0068	< 0.005
Chloroethane	< 0.012	< 0.012	< 0.011	< 0.011	< 0.010	< 0.01	< 0.005	< 0.012	< 0.014	< 0.055	< 0.011	< 0.010	< 0.01	< 0.005
2-Chloroethyl Vinyl Ether	< 0.061	< 0.059	< 0.0054	< 0.011	< 0.010	< 0.015	< 0.01	< 0.062	< 0.068	< 0.0055	< 0.011	< 0.010	< 0.014	< 0.01
Chloroform	< 0.0061	< 0.0059	< 0.011	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.011	< 0.0057	< 0.0051	< 0.0068	< 0.005
Choromethane	< 0.012	< 0.012	< 0.011	< 0.011	< 0.010	< 0.01	< 0.01	< 0.012	< 0.014	< 0.011	< 0.011	< 0.010	0.024	< 0.01
Dibromomethane	< 0.012	< 0.012	< 0.011	< 0.011	< 0.010	< 0.015	< 0.005	< 0.012	< 0.014	< 0.011	< 0.011	< 0.010	< 0.014	< 0.005
1,4-Dichloro-2-Butene	< 0.012	< 0.012	< 0.011	< 0.011	< 0.20	< 0.031	< 0.1	< 0.012	< 0.014	< 0.011	< 0.011	< 0.20	< 0.027	< 0.1
Dichlorodiflouromethane	< 0.012	< 0.012	< 0.0054	< 0.011	< 0.10	< 0.015	< 0.005	< 0.012	< 0.014	< 0.0055	< 0.011	< 0.10	< 0.014	< 0.005
1,1-Dichloroethane	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
1,2-Dichloroethane	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
1,1-Dichloroethene	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
Trans-1,2-Dichloroethene	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0056	< 0.0051	< 0.0068	< 0.005
1,2-Dichloropropane	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< # ## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S07-							S08-						
Sample Date / PARAMETERS	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
Cis-1,3-Dichloropropene	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
Trans-1,3-Dichloropropene	< 0.0061	< 0.0059	< 0.54	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 1.1	< 0.0057	< 0.0051	< 0.0068	< 0.005
Ethanol	< 1.2	< 1.2	< 0.0054	< 0.55	< 1.0	< 1	< 0.1	< 1.2	< 1.4	< 0.0055	< 0.57	< 1.0	< 1	< 0.1
Ethylbenzene	< 0.0061	< 0.0059	< 0.011	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.011	< 0.0057	< 0.0051	< 0.0068	< 0.005
Ethyl Methacrylate	< 0.0061	< 0.0059	< 0.011	< 0.0055	< 0.051	< 0.077	< 0.005	< 0.0062	< 0.0068	< 0.011	< 0.0057	< 0.051	< 0.068	< 0.005
2-Hexanone	< 0.012	< 0.012	< 0.0054	< 0.011	< 0.010	< 0.015	< 0.05	< 0.012	< 0.014	< 0.0055	< 0.011	< 0.010	< 0.014	< 0.05
Iodmethane	< 0.012	< 0.012	< 0.011	< 0.011	< 0.010	< 0.015	< 0.005	< 0.012	< 0.014	< 0.011	< 0.011	< 0.010	< 0.014	< 0.005
Methylene Chloride	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	0.016	< 0.01	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	0.014	< 0.01
4-Methyl-2-Pentanone	< 0.012	< 0.012	< 0.0054	< 0.011	< 0.010	< 0.015	< 0.05	< 0.012	< 0.014	< 0.0055	< 0.011	< 0.010	< 0.014	< 0.05
Styrene	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	0.01	< 0.005
1,1,2,2-Tetrachloroethane	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
Tetrachloroethene	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
Toluene	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
1,1,1-Trichloroethane	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
1,1,2-Trichloroethane	< 0.0061	< 0.0059	< 0.0054	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.0055	< 0.0057	< 0.0051	< 0.0068	< 0.005
Trichloroethene	< 0.0061	< 0.0059	< 0.011	< 0.0055	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.011	< 0.0057	< 0.0051	< 0.0068	< 0.005
Trichloroflouromethane	< 0.0061	< 0.0059	< 0.011	--	< 0.0051	< 0.0077	< 0.005	< 0.0062	< 0.0068	< 0.011	--	< 0.0051	< 0.0068	< 0.005
1,2,3-Trichloropropane	< 0.012	< 0.012	< 0.011	< 0.011	< 0.010	< 0.015	< 0.005	< 0.012	< 0.014	< 0.011	< 0.011	< 0.010	< 0.014	< 0.005
Vinyl Acetate	< 0.012	< 0.012	< 0.0054	< 0.011	< 0.010	< 0.015	< 0.05	< 0.012	< 0.014	< 0.0055	< 0.011	< 0.010	< 0.014	< 0.05
Vinyl Chloride	< 0.012	< 0.012	< 0.010	< 0.01	< 0.01	< 0.14	< 0.14	< 0.012	< 0.014	< 0.010	< 0.01	< 0.01	< 0.14	< 0.011
Total Xylene	< 0.0061	< 0.0059	< 0.0051	< 0.0068	< 0.005	< 0.28	< 0.28	< 0.0062	< 0.0068	< 0.0051	< 0.0064	< 0.005	< 0.28	< 0.0053

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S09-							S10-						
Sample Date / PARAMETERS	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
Acetone	< 0.012	< 0.012	< 0.010	< 0.010	< 0.010	< 0.027	0.2	< 0.011	< 0.012	< 0.010	< 0.011	< 0.010	< 0.044	0.1
Acrolein	< 0.12	< 0.12	< 0.10	< 0.10	< 0.10	< 0.1	< 0.1	< 0.11	< 0.12	< 0.10	< 0.11	< 0.10	< 0.1	< 0.1
Acrylonitrile	< 0.058	< 0.062	< 0.052	< 0.052	< 0.051	< 0.064	< 0.1	< 0.056	< 0.060	< 0.052	< 0.053	< 0.051	< 0.063	< 0.1
Benzene	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
Bromochloromethane	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
Bromodichloromethane	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
Bromoform	< 0.0058	< 0.0062	< 0.010	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.010	< 0.0053	< 0.0051	< 0.0063	< 0.005
Bromomethane	< 0.012	< 0.012	< 0.0052	< 0.010	< 0.010	< 0.01	< 0.01	< 0.011	< 0.012	< 0.0052	< 0.011	< 0.010	< 0.01	< 0.01
Carbon Disulfide	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
Carbon Tetrachloride	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
Chlorobenzene	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
Chlorodibromomethane	< 0.0058	< 0.0062	< 0.010	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.010	< 0.0053	< 0.0051	< 0.0063	< 0.005
Chloroethane	< 0.012	< 0.012	< 0.010	< 0.010	< 0.010	< 0.01	< 0.005	< 0.011	< 0.012	< 0.010	< 0.011	< 0.010	< 0.01	< 0.005
2-Chloroethyl Vinyl Ether	< 0.058	< 0.062	< 0.0052	< 0.010	< 0.010	< 0.013	< 0.01	< 0.056	< 0.060	< 0.0052	< 0.011	< 0.010	< 0.013	< 0.01
Chloroform	< 0.0058	< 0.0062	< 0.010	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.010	< 0.0053	< 0.0051	< 0.0063	< 0.005
Choromethane	< 0.012	< 0.012	< 0.010	< 0.010	< 0.010	< 0.01	< 0.01	< 0.011	< 0.012	< 0.010	< 0.011	< 0.010	< 0.01	< 0.01
Dibromomethane	< 0.012	< 0.012	< 0.010	< 0.010	< 0.010	< 0.013	< 0.005	< 0.011	< 0.012	< 0.010	< 0.011	< 0.010	< 0.013	< 0.005
1,4-Dichloro-2-Butene	< 0.012	< 0.012	< 0.010	< 0.010	< 0.20	< 0.026	< 0.1	< 0.011	< 0.012	< 0.010	< 0.011	< 0.20	< 0.025	< 0.1
Dichlorodiflouromethane	< 0.012	< 0.012	< 0.0052	< 0.010	< 0.10	< 0.013	< 0.005	< 0.011	< 0.012	< 0.0052	< 0.011	< 0.10	< 0.013	< 0.005
1,1-Dichloroethane	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
1,2-Dichloroethane	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
1,1-Dichloroethene	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
Trans-1,2-Dichloroethene	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
1,2-Dichloropropane	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S09-							S10-						
Sample Date / PARAMETERS	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
Cis-1,3-Dichloropropene	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
Trans-1,3-Dichloropropene	< 0.0058	< 0.0062	< 0.52	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.52	< 0.0053	< 0.0051	< 0.0063	< 0.005
Ethanol	< 1.2	< 1.2	< 0.0052	< 0.52	< 1.0	< 1	< 0.1	< 1.1	< 1.2	< 0.0052	< 0.53	< 1.0	< 1	< 0.1
Ethylbenzene	< 0.0058	< 0.0062	< 0.010	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.010	< 0.0053	< 0.0051	< 0.0063	< 0.005
Ethyl Methacrylate	< 0.0058	< 0.0062	< 0.010	< 0.0052	< 0.051	< 0.064	< 0.005	< 0.0056	< 0.0060	< 0.010	< 0.0053	< 0.051	< 0.063	< 0.005
2-Hexanone	< 0.012	< 0.012	< 0.0052	< 0.010	< 0.010	< 0.013	< 0.05	< 0.011	< 0.012	< 0.0052	< 0.011	< 0.010	< 0.013	< 0.05
Iodmethane	< 0.012	< 0.012	< 0.010	< 0.010	< 0.010	< 0.013	< 0.005	< 0.011	< 0.012	< 0.010	< 0.011	< 0.010	< 0.013	< 0.005
Methylene Chloride	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	0.009	< 0.01	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	0.011	< 0.01
4-Methyl-2-Pentanone	< 0.012	< 0.012	< 0.0052	< 0.010	< 0.010	< 0.013	< 0.05	< 0.011	< 0.012	< 0.0052	< 0.011	< 0.010	< 0.013	< 0.05
Styrene	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
1,1,2,2-Tetrachloroethane	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
Tetrachloroethene	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
Toluene	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
1,1,1-Trichloroethane	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
1,1,2-Trichloroethane	< 0.0058	< 0.0062	< 0.0052	< 0.0052	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.0052	< 0.0053	< 0.0051	< 0.0063	< 0.005
Trichloroethene	< 0.0058	< 0.0062	< 0.010	< 0.0052	< 0.0051	0.009	< 0.005	< 0.0056	< 0.0060	< 0.010	< 0.0053	< 0.0051	< 0.0063	< 0.005
Trichloroflouromethane	< 0.0058	< 0.0062	< 0.010	--	< 0.0051	< 0.0064	< 0.005	< 0.0056	< 0.0060	< 0.010	--	< 0.0051	< 0.0063	< 0.005
1,2,3-Trichloropropane	< 0.012	< 0.012	< 0.010	< 0.010	< 0.010	< 0.013	< 0.005	< 0.011	< 0.012	< 0.010	< 0.011	< 0.010	< 0.013	< 0.005
Vinyl Acetate	< 0.012	< 0.012	< 0.0052	< 0.010	< 0.010	< 0.013	< 0.05	< 0.011	< 0.012	< 0.0052	< 0.011	< 0.010	< 0.013	< 0.05
Vinyl Chloride	< 0.012	< 0.012	< 0.01	< 0.14	< 0.14	< 0.14	< 0.011	< 0.011	< 0.012	< 0.01	< 0.01	< 0.14	< 0.010	< 0.010
Total Xylene	< 0.0058	< 0.0062	< 0.005	< 0.28	< 0.28	< 0.28	< 0.0056	< 0.0056	< 0.0060	< 0.0073	< 0.005	< 0.28	< 0.0052	< 0.0051

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S11-							S12-						
Sample Date / PARAMETERS	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
Acetone	< 0.013	< 0.012	< 0.011	< 0.011	< 0.010	0.022	0.2	< 0.012	< 0.012	< 0.011	< 0.010	< 0.010	0.031	0.1
Acrolein	< 0.13	< 0.12	< 0.11	< 0.11	< 0.10	< 0.1	< 0.1	< 0.12	< 0.12	< 0.11	< 0.10	< 0.10	< 0.1	< 0.1
Acrylonitrile	< 0.064	< 0.062	< 0.056	< 0.056	< 0.051	< 0.073	< 0.1	< 0.061	< 0.061	< 0.053	< 0.052	< 0.051	< 0.072	< 0.1
Benzene	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
Bromochloromethane	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
Bromodichloromethane	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
Bromoform	< 0..0064	< 0.012	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.012	< 0.011	< 0.0052	< 0.0051	< 0.0072	< 0.005
Bromomethane	< 0.013	< 0.0062	< 0.011	< 0.011	< 0.010	< 0.01	< 0.01	< 0.012	< 0.0061	< 0.0053	< 0.010	< 0.010	< 0.01	< 0.01
Carbon Disulfide	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
Carbon Tetrachloride	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
Chlorobenzene	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
Chlorodibromomethane	< 0.0064	< 0.012	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.012	< 0.011	< 0.0052	< 0.0051	< 0.0072	< 0.005
Chloroethane	< 0.013	< 0.062	< 0.011	< 0.011	< 0.010	< 0.01	< 0.005	< 0.012	< 0.061	< 0.011	< 0.010	< 0.010	< 0.01	< 0.005
2-Chloroethyl Vinyl Ether	< 0.064	< 0.0062	< 0.011	< 0.011	< 0.010	< 0.015	< 0.01	< 0.061	< 0.0061	< 0.0053	< 0.010	< 0.010	< 0.014	< 0.01
Chloroform	< 0.0064	< 0.012	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.012	< 0.011	< 0.0052	< 0.0051	< 0.0072	< 0.005
Choromethane	< 0.013	< 0.012	< 0.011	< 0.011	< 0.010	0.014	< 0.01	< 0.012	< 0.012	< 0.011	< 0.010	< 0.010	< 0.01	< 0.01
Dibromomethane	< 0.013	< 0.012	< 0.011	< 0.011	< 0.010	< 0.015	< 0.005	< 0.012	< 0.012	< 0.011	< 0.010	< 0.010	< 0.014	< 0.005
1,4-Dichloro-2-Butene	< 0.013	< 0.012	< 0.011	< 0.011	< 0.20	< 0.029	< 0.1	< 0.012	< 0.012	< 0.011	< 0.010	< 0.20	< 0.029	< 0.1
Dichlorodiflouromethane	< 0.013	< 0.0062	< 0.011	< 0.011	< 0.10	< 0.015	< 0.005	< 0.012	< 0.0061	< 0.0053	< 0.010	< 0.10	< 0.014	< 0.005
1,1-Dichloroethane	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
1,2-Dichloroethane	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
1,1-Dichloroethene	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
Trans-1,2-Dichloroethene	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
1,2-Dichloropropane	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S11-							S12-						
Sample Date / PARAMETERS	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
Cis-1,3-Dichloropropene	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
Trans-1,3-Dichloropropene	< 0.0064	< 1.2	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 1.2	< 0.53	< 0.0052	< 0.0051	< 0.0072	< 0.005
Ethanol	< 1.3	< 0.0062	< 0.56	< 0.56	< 1.0	< 1	< 0.1	< 1.2	< 0.0061	< 0.0053	< 0.52	< 1.0	< 1	< 0.1
Ethylbenzene	< 0.0064	< 0.012	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.012	< 0.011	< 0.0052	< 0.0051	< 0.0072	< 0.005
Ethyl Methacrylate	< 0.0064	< 0.012	< 0.0056	< 0.0056	< 0.051	< 0.073	< 0.005	< 0.0061	< 0.012	< 0.011	< 0.0052	< 0.051	< 0.072	< 0.005
2-Hexanone	< 0.013	< 0.0062	< 0.011	< 0.011	< 0.010	< 0.015	< 0.05	< 0.012	< 0.0061	< 0.0053	< 0.010	< 0.010	< 0.014	< 0.05
Iodmethane	< 0.013	< 0.012	< 0.011	< 0.011	< 0.010	< 0.015	< 0.005	< 0.012	< 0.012	< 0.011	< 0.010	< 0.010	< 0.014	< 0.005
Methylene Chloride	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	0.017	< 0.01	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	0.009	< 0.01
4-Methyl-2-Pentanone	< 0.013	< 0.0062	< 0.011	< 0.011	< 0.010	< 0.015	< 0.05	< 0.012	< 0.0061	< 0.0053	< 0.010	< 0.010	< 0.014	< 0.05
Styrene	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
1,1,2,2-Tetrachloroethane	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
Tetrachloroethene	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
Toluene	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
1,1,1-Trichloroethane	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
1,1,2-Trichloroethane	< 0.0064	< 0.0062	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.0061	< 0.0053	< 0.0052	< 0.0051	< 0.0072	< 0.005
Trichloroethene	< 0.0064	< 0.012	< 0.0056	< 0.0056	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.012	< 0.011	< 0.0052	< 0.0051	< 0.0072	< 0.005
Trichloroflouromethane	< 0.0064	< 0.012	< 0.0056	--	< 0.0051	< 0.0073	< 0.005	< 0.0061	< 0.012	< 0.011	--	< 0.0051	< 0.0072	< 0.005
1,2,3-Trichloropropane	< 0.013	< 0.012	< 0.011	< 0.011	< 0.010	< 0.015	< 0.005	< 0.012	< 0.012	< 0.011	< 0.010	< 0.010	< 0.014	< 0.005
Vinyl Acetate	< 0.013	< 0.0062	< 0.011	< 0.011	< 0.010	< 0.015	< 0.05	< 0.012	< 0.0061	< 0.0053	< 0.010	< 0.010	< 0.014	< 0.05
Vinyl Chloride	< 0.013	< 0.012	< 0.011	< 0.14	< 0.010	< 0.010	< 0.01	< 0.012	< 0.012	< 0.01	< 0.14	< 0.011	< 0.010	< 0.01
Total Xylene	< 0.0064	< 0.0062	< 0.0056	< 0.28	< 0.0051	< 0.0051	< 0.0052	< 0.0061	< 0.0061	< 0.005	< 0.28	< 0.0054	< 0.0051	< 0.0055

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
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TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S13-							S14-						
Sample Date / PARAMETERS	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
Acetone	< 0.012	< 0.013	< 0.010	< 0.010	< 0.010	0.017	0.3	< 0.012	< 0.013	< 0.011	< 0.011	< 0.010	0.017	0.07 J
Acrolein	< 0.12	< 0.13	< 0.10	< 0.10	< 0.10	< 0.1	< 0.1	< 0.12	< 0.13	< 0.11	< 0.11	< 0.10	< 0.1	< 0.1
Acrylonitrile	< 0.060	< 0.063	< 0.052	< 0.051	< 0.051	< 0.052	< 0.1	< 0.060	< 0.064	< 0.053	< 0.054	< 0.051	< 0.055	< 0.1
Benzene	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
Bromochloromethane	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
Bromodichloromethane	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
Bromoform	< 0.0060	< 0.013	< 0.010	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.013	< 0.011	< 0.0054	< 0.0051	< 0.0055	< 0.005
Bromomethane	< 0.012	< 0.0063	< 0.0052	< 0.010	< 0.010	< 0.01	< 0.01	< 0.012	< 0.0064	< 0.0053	< 0.011	< 0.010	< 0.01	< 0.01
Carbon Disulfide	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
Carbon Tetrachloride	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
Chlorobenzene	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
Chlorodibromomethane	< 0.0060	< 0.013	< 0.010	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.013	< 0.011	< 0.0054	< 0.0051	< 0.0055	< 0.005
Chloroethane	< 0.012	< 0.063	< 0.010	< 0.010	< 0.010	< 0.01	< 0.005	< 0.012	< 0.013	< 0.011	< 0.011	< 0.010	< 0.01	< 0.005
2-Chloroethyl Vinyl Ether	< 0.060	< 0.0063	< 0.0052	< 0.010	< 0.010	< 0.01	< 0.01	< 0.060	< 0.0064	< 0.0053	< 0.011	< 0.010	< 0.011	< 0.01
Chloroform	< 0.0060	< 0.013	< 0.010	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.01	< 0.011	< 0.0054	< 0.0051	< 0.0055	< 0.005
Choromethane	< 0.012	< 0.013	< 0.010	< 0.010	< 0.010	< 0.01	< 0.01	< 0.012	< 0.013	< 0.011	< 0.011	< 0.010	< 0.01	< 0.01
Dibromomethane	< 0.012	< 0.013	< 0.010	< 0.010	< 0.010	< 0.01	< 0.005	< 0.012	< 0.013	< 0.011	< 0.011	< 0.010	< 0.011	< 0.005
1,4-Dichloro-2-Butene	< 0.012	< 0.013	< 0.010	< 0.010	< 0.20	< 0.021	< 0.1	< 0.012	< 0.013	< 0.011	--	< 0.20	< 0.022	< 0.1
Dichlorodiflouromethane	< 0.012	< 0.0063	< 0.0052	< 0.01	< 0.10	< 0.01	< 0.005	< 0.012	< 0.0064	< 0.0053	< 0.01	< 0.10	< 0.011	< 0.005
1,1-Dichloroethane	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
1,2-Dichloroethane	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
1,1-Dichloroethene	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
Trans-1,2-Dichloroethene	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
1,2-Dichloropropane	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S13-							S14-						
Sample Date	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
PARAMETERS														
Cis-1,3-Dichloropropene	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
Trans-1,3-Dichloropropene	< 0.0060	< 1.3	< 0.52	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 1.3	< 0.53	< 0.0054	< 0.0051	< 0.0055	< 0.005
Ethanol	< 1.2	< 0.0063	< 0.0052	< 0.51	< 1.0	< 1	< 0.1	< 1.2	< 0.0064	< 0.0053	--	< 1.0	< 1	< 0.1
Ethylbenzene	< 0.0060	< 0.013	< 0.010	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.013	< 0.011	< 0.0054	< 0.0051	< 0.0055	< 0.005
Ethyl Methacrylate	< 0.0060	< 0.013	< 0.010	< 0.051	< 0.051	< 0.052	< 0.005	< 0.0060	< 0.013	< 0.011	< 0.0054	< 0.051	< 0.055	< 0.005
2-Hexanone	< 0.012	< 0.0063	< 0.0052	< 0.010	< 0.010	< 0.01	< 0.05	< 0.012	< 0.0064	< 0.0053	< 0.011	< 0.010	< 0.011	< 0.05
Iodmethane	< 0.012	< 0.013	< 0.010	< 0.010	< 0.010	< 0.01	< 0.005	< 0.012	< 0.013	< 0.011	< 0.011	< 0.010	< 0.011	< 0.005
Methylene Chloride	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	0.018	< 0.01	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.028	< 0.01
4-Methyl-2-Pentanone	< 0.012	< 0.0063	< 0.0052	< 0.010	< 0.010	< 0.01	< 0.05	< 0.012	< 0.0064	< 0.0053	< 0.011	< 0.010	< 0.011	< 0.05
Styrene	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
1,1,2,2-Tetrachloroethane	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
Tetrachloroethene	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
Toluene	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
1,1,1-Trichloroethane	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
1,1,2-Trichloroethane	< 0.0060	< 0.0063	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.0064	< 0.0053	< 0.0054	< 0.0051	< 0.0055	< 0.005
Trichloroethene	< 0.0060	< 0.013	< 0.010	< 0.0051	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.013	< 0.011	< 0.0054	< 0.0051	< 0.0055	< 0.005
Trichloroflouromethane	< 0.0060	< 0.013	< 0.010	--	< 0.0051	< 0.0052	< 0.005	< 0.0060	< 0.013	--	--	< 0.0051	< 0.0055	< 0.005
1,2,3-Trichloropropane	< 0.012	< 0.013	< 0.010	< 0.010	< 0.010	< 0.01	< 0.005	< 0.012	< 0.013	< 0.011	< 0.011	< 0.010	< 0.011	< 0.005
Vinyl Acetate	< 0.012	< 0.0063	< 0.0052	< 0.010	< 0.010	< 0.01	< 0.05	< 0.012	< 0.0064	< 0.0053	< 0.011	< 0.010	< 0.011	< 0.05
Vinyl Chloride	< 0.012	< 0.013	< 0.14	< 0.14	< 0.011	< 0.010	< 0.01	< 0.012	< 0.013	< 0.010	< 0.010	< 0.010	< 0.01	< 0.14
Total Xylene	< 0.006	< 0.0063	< 0.28	< 0.28	< 0.0054	< 0.0051	< 0.0054	< 0.0060	< 0.0064	< 0.0052	< 0.0051	< 0.0051	< 0.0052	< 0.28

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S15-							S16-						
Sample Date / PARAMETERS	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
Acetone	< 0.014	< 0.014	< 0.011	< 0.011	< 0.010	0.029	< 0.1	< 0.012	< 0.011	< 0.010	< 0.010	< 0.010	< 0.01	0.1
Acrolein	< 0.14	< 0.14	< 0.11	< 0.11	< 0.10	< 0.1	< 0.1	< 0.12	< 0.11	< 0.10	< 0.10	< 0.10	< 0.1	< 0.1
Acrylonitrile	< 0.071	< 0.068	< 0.054	< 0.054	< 0.051	< 0.054	< 0.1	< 0.061	< 0.056	< 0.051	< 0.052	< 0.051	< 0.052	< 0.1
Benzene	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
Bromochloromethane	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0054	< 0.005
Bromodichloromethane	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
Bromoform	< 0.0071	< 0.014	< 0.011	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.011	< 0.010	< 0.0052	< 0.0051	< 0.0052	< 0.005
Bromomethane	< 0.014	< 0.0068	< 0.0054	< 0.011	< 0.010	< 0.01	< 0.01	< 0.012	< 0.0056	< 0.0051	< 0.010	< 0.010	< 0.01	< 0.01
Carbon Disulfide	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
Carbon Tetrachloride	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
Chlorobenzene	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
Chlorodibromomethane	< 0.0071	< 0.014	< 0.011	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.011	< 0.010	< 0.0052	< 0.0051	< 0.0052	< 0.005
Chloroethane	< 0.014	< 0.068	< 0.011	< 0.011	< 0.010	< 0.01	< 0.005	< 0.012	< 0.056	< 0.051	< 0.010	< 0.010	< 0.01	< 0.005
2-Chloroethyl Vinyl Ether	< 0.071	< 0.0068	< 0.0054	< 0.011	< 0.010	< 0.011	< 0.01	< 0.061	< 0.0056	< 0.0051	< 0.010	< 0.010	< 0.01	< 0.01
Chloroform	< 0.0071	< 0.014	< 0.011	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.011	< 0.010	< 0.0052	< 0.0051	< 0.0052	< 0.005
Choromethane	< 0.014	< 0.014	< 0.011	< 0.011	< 0.010	0.017	< 0.01	< 0.012	< 0.011	< 0.010	< 0.010	< 0.010	0.016	< 0.01
Dibromomethane	< 0.014	< 0.014	< 0.011	< 0.011	< 0.010	0.017	< 0.005	< 0.012	< 0.011	< 0.010	< 0.010	< 0.010	< 0.01	< 0.005
1,4-Dichloro-2-Butene	< 0.014	< 0.014	< 0.011	< 0.011	< 0.20	< 0.021	< 0.1	< 0.012	< 0.011	< 0.010	< 0.010	< 0.20	< 0.021	< 0.1
Dichlorodiflouromethane	< 0.014	< 0.0068	< 0.0054	< 0.01	< 0.10	< 0.011	< 0.005	< 0.012	< 0.0056	< 0.0051	< 0.010	< 0.10	< 0.01	< 0.005
1,1-Dichloroethane	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
1,2-Dichloroethane	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
1,1-Dichloroethene	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
Trans-1,2-Dichloroethene	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0054	< 0.005
1,2-Dichloropropane	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S15-							S16-						
Sample Date / PARAMETERS	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
Cis-1,3-Dichloropropene	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
Trans-1,3-Dichloropropene	< 0.0071	< 1.4	< 0.54	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 1.1	< 1	< 0.0052	< 0.0051	< 0.0052	< 0.005
Ethanol	< 1.4	< 0.0068	< 0.0054	< 0.54	< 1.0	< 1	< 0.1	< 1.2	< 0.0056	< 0.0051	< 0.52	< 1.0	< 1	< 0.1
Ethylbenzene	< 0.0071	< 0.014	< 0.011	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.011	< 0.010	< 0.0052	< 0.0051	< 0.0052	< 0.005
Ethyl Methacrylate	< 0.0071	< 0.014	< 0.011	< 0.0054	< 0.051	0.054	< 0.005	< 0.0061	< 0.011	< 0.010	< 0.0052	< 0.051	< 0.052	< 0.005
2-Hexanone	< 0.014	< 0.0068	< 0.0054	< 0.011	< 0.010	< 0.011	< 0.05	< 0.012	< 0.0056	< 0.0051	< 0.010	< 0.010	< 0.01	< 0.05
Iodmethane	< 0.014	< 0.014	< 0.011	< 0.011	< 0.010	< 0.011	< 0.005	< 0.012	< 0.011	< 0.010	< 0.010	< 0.010	< 0.01	< 0.005
Methylene Chloride	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	0.012	< 0.01	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	0.016	< 0.01
4-Methyl-2-Pentanone	< 0.014	< 0.0068	< 0.0054	< 0.011	< 0.010	< 0.011	< 0.05	< 0.012	< 0.0056	< 0.0051	< 0.010	< 0.010	< 0.01	< 0.05
Styrene	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
1,1,2,2-Tetrachloroethane	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
Tetrachloroethene	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
Toluene	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
1,1,1-Trichloroethane	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
1,1,2-Trichloroethane	< 0.0071	< 0.0068	< 0.0054	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.0056	< 0.0051	< 0.0052	< 0.0051	< 0.0052	< 0.005
Trichloroethene	< 0.0071	< 0.014	< 0.011	< 0.0054	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.011	< 0.010	< 0.0052	< 0.0051	< 0.0052	< 0.005
Trichloroflouromethane	< 0.0071	< 0.014	< 0.011	--	< 0.0051	< 0.0054	< 0.005	< 0.0061	< 0.011	< 0.010	--	< 0.0051	< 0.0052	< 0.005
1,2,3-Trichloropropane	< 0.014	< 0.014	< 0.011	< 0.011	< 0.010	< 0.011	< 0.005	< 0.012	< 0.011	< 0.010	< 0.010	< 0.010	< 0.01	< 0.005
Vinyl Acetate	< 0.014	< 0.0068	< 0.0054	< 0.011	< 0.010	< 0.011	< 0.05	< 0.012	< 0.0056	< 0.0051	< 0.010	< 0.010	< 0.01	< 0.05
Vinyl Chloride	< 0.014	< 0.014	< 0.010	< 0.01	< 0.01	< 0.14	< 0.010	< 0.012	< 0.011	< 0.01	< 0.01	< 0.010	< 0.01	< 0.010
Total Xylene	< 0.0071	< 0.0068	< 0.0051	< 0.0063	< 0.005	< 0.28	< 0.0051	< 0.0061	< 0.0056	< 0.0078	< 0.005	< 0.0052	< 0.0066	< 0.0051

Notes

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S17-							OFF1-						
Sample Date	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
PARAMETERS														
Acetone	< 0.011	< 0.013	< 0.011	< 0.011	< 0.010	< 0.013	< 0.1	< 0.011	< 0.012	< 0.011	< 0.011	< 0.010	0.02	0.06J
Acrolein	< 0.11	< 0.13	< 0.11	< 0.11	< 0.10	< 0.1	< 0.1	< 0.11	< 0.12	< 0.11	< 0.11	< 0.10	< 0.1	< 0.01
Acrylonitrile	< 0.057	< 0.064	< 0.053	< 0.053	< 0.051	< 0.063	< 0.1	< 0.056	< 0.059	< 0.055	< 0.056	< 0.051	< 0.078	< 0.01
Benzene	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Bromochloromethane	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Bromodichloromethane	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Bromoform	< 0.0057	< 0.013	< 0.011	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.012	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Bromomethane	< 0.011	< 0.0064	< 0.0053	< 0.0110	< 0.010	< 0.01	< 0.01	< 0.011	< 0.0059	< 0.011	< 0.011	< 0.010	< 0.01	< 0.01
Carbon Disulfide	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Carbon Tetrachloride	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Chlorobenzene	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Chlorodibromomethane	< 0.0057	< 0.013	< 0.011	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.012	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Chloroethane	< 0.011	< 0.061	< 0.011	< 0.0110	< 0.010	< 0.01	< 0.005	< 0.011	< 0.059	< 0.011	< 0.011	< 0.010	< 0.01	< 0.005
2-Chloroethyl Vinyl Ether	< 0.057	< 0.0064	< 0.0053	< 0.0110	< 0.010	< 0.013	< 0.01	< 0.056	< 0.0059	< 0.055	< 0.011	< 0.010	< 0.016	< 0.01
Chloroform	< 0.0057	< 0.013	< 0.011	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.012	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Choromethane	< 0.011	< 0.013	< 0.011	< 0.0110	< 0.010	< 0.01	< 0.01	< 0.011	< 0.012	< 0.011	< 0.011	< 0.010	< 0.01	< 0.01
Dibromomethane	< 0.011	< 0.013	< 0.011	< 0.0110	< 0.010	< 0.013	< 0.005	< 0.011	< 0.012	< 0.011	< 0.011	< 0.010	< 0.016	< 0.005
1,4-Dichloro-2-Butene	< 0.011	< 0.013	< 0.011	< 0.010	< 0.20	< 0.025	< 0.1	< 0.011	< 0.012	< 0.011	< 0.011	< 0.20	< 0.031	< 0.1
Dichlorodiflouromethane	< 0.011	< 0.0064	< 0.0053	< 0.0110	< 0.10	< 0.013	< 0.005	< 0.011	< 0.0059	< 0.011	< 0.01	< 0.10	< 0.016	< 0.005
1,1-Dichloroethane	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
1,2-Dichloroethane	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
1,1-Dichloroethene	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Trans-1,2-Dichloroethene	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
1,2-Dichloropropane	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	S17-							OFF1-						
Sample Date / PARAMETERS	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
Cis-1,3-Dichloropropene	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Trans-1,3-Dichloropropene	< 0.0057	< 1.3	< 0.53	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 1.2	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Ethanol	< 1.1	< 0.0064	< 0.0053	< 0.53	< 1.0	< 1	< 0.1	< 1.1	< 0.0059	< 1.1	< 0.56	< 1.0	< 1	< 0.1
Ethylbenzene	< 0.0057	< 0.013	< 0.011	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.012	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Ethyl Methacrylate	< 0.0057	< 0.013	< 0.011	< 0.0053	< 0.051	< 0.063	< 0.005	< 0.0056	< 0.012	< 0.0055	< 0.0056	< 0.051	< 0.078	< 0.005
2-Hexanone	< 0.011	< 0.0064	< 0.0053	< 0.011	< 0.010	< 0.013	< 0.05	< 0.011	< 0.0059	< 0.011	< 0.011	< 0.010	< 0.016	< 0.05
Iodmethane	< 0.011	< 0.013	< 0.011	< 0.011	< 0.010	< 0.013	< 0.005	< 0.011	< 0.012	< 0.011	< 0.011	< 0.010	< 0.016	< 0.005
Methylene Chloride	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	0.015	< 0.01	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	0.035	< 0.01
4-Methyl-2-Pentanone	< 0.011	< 0.0064	< 0.0053	< 0.011	< 0.010	< 0.013	< 0.05	< 0.011	< 0.0059	< 0.011	< 0.011	< 0.010	< 0.016	< 0.05
Styrene	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
1,1,2,2-Tetrachloroethane	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Tetrachloroethene	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Toluene	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
1,1,1-Trichloroethane	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
1,1,2-Trichloroethane	< 0.0057	< 0.0064	< 0.0053	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.0059	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Trichloroethene	< 0.0057	< 0.013	< 0.011	< 0.0053	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.012	< 0.0055	< 0.0056	< 0.0051	< 0.0078	< 0.005
Trichloroflouromethane	< 0.0057	< 0.013	< 0.011	--	< 0.0051	< 0.0063	< 0.005	< 0.0056	< 0.012	< 0.0055	--	< 0.0051	< 0.0078	< 0.005
1,2,3-Trichloropropane	< 0.011	< 0.013	< 0.011	< 0.011	< 0.0051	< 0.0063	< 0.005	< 0.011	< 0.012	< 0.011	< 0.0056	< 0.0051	< 0.0078	< 0.005
Vinyl Acetate	< 0.011	< 0.0064	< 0.0053	< 0.011	< 0.0051	< 0.0063	< 0.005	< 0.011	< 0.0059	< 0.011	< 0.0056	< 0.0051	< 0.0078	< 0.005
Vinyl Chloride	< 0.011	< 0.013	< 0.0100	< 0.01	< 0.010	< 0.013	< 0.005	< 0.011	< 0.012	< 0.011	< 0.011	< 0.010	< 0.016	< 0.005
Total Xylene	< 0.0057	< 0.0064	< 0.0069	< 0.005	< 0.010	< 0.013	< 0.05	< 0.0056	< 0.0059	< 0.0055	< 0.011	< 0.010	< 0.016	< 0.05

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg)
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	OFF2-							OFF3-						
Sample Date / PARAMETERS	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
Acetone	< 0.011	< 0.011	< 0.010	< 0.010	< 0.010	< 0.013	0.07J	< 0.012	< 0.010	< 0.011	< 0.012	< 0.010	0.0890	0.08J
Acrolein	< 0.11	< 0.11	< 0.10	< 0.10	< 0.10	< 0.1	< 0.01	< 0.12	< 0.10	< 0.11	< 0.12	< 0.10	< 0.1000	< 0.01
Acrylonitrile	< 0.056	< 0.054	< 0.051	< 0.052	< 0.051	< 0.066	< 0.01	< 0.062	< 0.052	< 0.057	< 0.058	< 0.051	< 0.0690	< 0.01
Benzene	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Bromochloromethane	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Bromodichloromethane	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Bromoform	< 0.0056	< 0.011	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.010	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Bromomethane	< 0.011	< 0.0054	< 0.010	< 0.010	< 0.010	< 0.01	< 0.01	< 0.012	< 0.0052	< 0.011	< 0.012	< 0.010	< 0.0100	< 0.01
Carbon Disulfide	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Carbon Tetrachloride	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Chlorobenzene	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Chlorodibromomethane	< 0.0056	< 0.011	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.010	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Chloroethane	< 0.011	< 0.054	< 0.010	< 0.010	< 0.010	< 0.01	< 0.005	< 0.012	< 0.052	< 0.011	< 0.012	< 0.010	< 0.0100	< 0.005
2-Chloroethyl Vinyl Ether	< 0.056	< 0.0054	< 0.051	< 0.010	< 0.010	< 0.013	< 0.01	< 0.062	< 0.0052	< 0.057	< 0.012	< 0.010	< 0.0140	< 0.01
Chloroform	< 0.0056	< 0.011	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.010	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Choromethane	< 0.011	< 0.011	< 0.010	< 0.010	< 0.010	< 0.01	< 0.01	< 0.012	< 0.010	< 0.011	< 0.012	< 0.010	< 0.0100	< 0.01
Dibromomethane	< 0.011	< 0.011	< 0.010	< 0.010	< 0.010	< 0.013	< 0.005	< 0.012	< 0.010	< 0.011	< 0.012	< 0.010	< 0.0140	< 0.005
1,4-Dichloro-2-Butene	< 0.011	< 0.011	< 0.010	< 0.010	< 0.20	< 0.026	< 0.1	< 0.012	< 0.010	< 0.011	< 0.012	< 0.20	< 0.0280	< 0.1
Dichlorodiflouromethane	< 0.011	< 0.0054	< 0.010	< 0.010	< 0.10	< 0.013	< 0.005	< 0.012	< 0.0052	< 0.011	< 0.01	< 0.10	< 0.0140	< 0.005
1,1-Dichloroethane	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
1,2-Dichloroethane	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
1,1-Dichloroethene	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Trans-1,2-Dichloroethene	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
1,2-Dichloropropane	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< # ## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit.

TABLE B-2
HISTORICAL SOIL ANALYTICAL DATA
VOLATILE ORGANIC CONSTITUENTS
CLEAN HARBORS COLFAX), LLC - COLFAX, LOUISIANA
EPA FACILITY ID NO. LAD 981 055 791

Location	OFF2-							OFF3-						
Sample Date	0802	0701	0700	0799	0898	0797	0796	0802	0701	0700	0799	0898	0797	0796
PARAMETERS														
Cis-1,3-Dichloropropene	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Trans-1,3-Dichloropropene	< 0.0056	< 1.1	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 1.0	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Ethanol	< 1.1	< 0.0054	< 1	< 0.52	< 1.0	< 1	< 0.1	< 1.2	< 0.0052	< 1.1	--	< 1.0	< 1.0000	< 0.1
Ethylbenzene	< 0.0056	< 0.011	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.010	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Ethyl Methacrylate	< 0.0056	< 0.011	< 0.0051	< 0.0052	< 0.051	< 0.066	< 0.005	< 0.0062	< 0.010	< 0.0057	< 0.0058	< 0.051	< 0.0690	< 0.005
2-Hexanone	< 0.011	< 0.0054	< 0.010	< 0.010	< 0.010	< 0.013	< 0.05	< 0.012	< 0.0052	< 0.011	< 0.012	< 0.010	< 0.0140	< 0.05
Iodmethane	< 0.011	< 0.011	< 0.010	< 0.010	< 0.010	< 0.013	< 0.005	< 0.012	< 0.010	< 0.011	< 0.012	< 0.010	< 0.0140	< 0.005
Methylene Chloride	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	0.013	< 0.01	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.01
4-Methyl-2-Pentanone	< 0.011	< 0.0054	< 0.010	< 0.010	< 0.010	< 0.013	< 0.05	< 0.012	< 0.0052	< 0.011	< 0.012	< 0.010	< 0.0140	< 0.05
Styrene	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
1,1,2,2-Tetrachloroethane	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Tetrachloroethene	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	0.015	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Toluene	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
1,1,1-Trichloroethane	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
1,1,2-Trichloroethane	< 0.0056	< 0.0054	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.0052	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Trichloroethene	< 0.0056	< 0.011	< 0.0051	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.010	< 0.0057	< 0.0058	< 0.0051	< 0.0069	< 0.005
Trichloroflouromethane	< 0.0056	< 0.011	< 0.0051	--	< 0.0051	< 0.0066	< 0.005	< 0.0062	< 0.010	< 0.0057	--	< 0.0051	< 0.0069	< 0.005
1,2,3-Trichloropropane	< 0.011	< 0.011	< 0.010	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.012	< 0.010	< 0.011	< 0.012	< 0.0051	< 0.0069	< 0.005
Vinyl Acetate	< 0.011	< 0.0054	< 0.010	< 0.0052	< 0.0051	< 0.0066	< 0.005	< 0.012	< 0.0052	< 0.011	< 0.012	< 0.0051	< 0.0069	< 0.005
Vinyl Chloride	< 0.011	< 0.011	< 0.010	< 0.010	< 0.010	< 0.013	< 0.005	< 0.012	< 0.011		< 0.012	< 0.010	< 0.0140	< 0.005
Total Xylene	< 0.0056	< 0.0054	< 0.0051	< 0.010	< 0.010	< 0.013	< 0.05	< 0.0062	< 0.0057		< 0.0058	< 0.010	< 0.0140	< 0.05

Notes:

This table represents an abbreviated list of the volatile constituents analyzed, consistent with previous reports. All other volatile constituents were below their respective Practical Quantitation Limits.
< #.## Indicates result is below the practical quantitation limit indicated.

All data given in milligrams per kilograms (mg/kg).
J - Value reported below practical quantitation limit

APPENDIX C

COCHRAN'S APPROXIMATION TO THE BEHRENS-FISHER STUDENTS' T-TEST 40 CFR PART 264, APPENDIX IV

Appendix IV to Part 264—Cochran's Approximation to the Behrens-Fisher Students' t-test

Using all the available background data (n_b readings), calculate the background mean (X_b) and background variance (s_b^2). For the single monitoring well under investigation (n_m reading), calculate the monitoring mean (X_m) and monitoring variance (s_m^2).

For any set of data ($X_1, X_2 \ldots X_n$) the mean is calculated by:

$$\overline{X} = \frac{X_1 + X_2 \ldots + X_n}{n}$$

and the variance is calculated by:

$$s^2 = \frac{(X_1 - \overline{X})^2 + (X_2 - \overline{X})^2 \ldots + (X_n - \overline{X})^2}{n - 1}$$

where "n" denotes the number of observations in the set of data.

The t-test uses these data summary measures to calculate a t-statistic (t^*) and a comparison t-statistic (t_c). The t^* value is compared to the t_c value and a conclusion reached as to whether there has been a statistically significant change in any indicator parameter.

The t-statistic for all parameters except pH and similar monitoring parameters is:

$$t^* = \frac{X_m - \overline{X}_B}{\sqrt{\frac{S_m^2}{n_m} + \frac{S_b^2}{n_b}}}$$

If the value of this t-statistic is negative then there is no significant difference between the monitoring data and background data. It should be noted that significantly small negative values may be indicative of a failure of the assumption made for test validity or errors have been made in collecting the background data.

The t-statistic (t_c), against which t^* will be compared, necessitates finding t_b and t_m from standard (one-tailed) tables where,

t_b = t-tables with ($n_b - 1$) degrees of freedom, at the 0.05 level of significance.

t_m = t-tables with ($n_m - 1$) degrees of freedom, at the 0.05 level of significance.

Finally, the special weightings W_b and W_m are defined as:

$$W_b = \frac{s_b^2}{n_b} \text{ and } W_m = \frac{s_m^2}{n_m}$$

and so the comparison t-statistic is:

$$t_c = \frac{W_b t_b + W_m t_m}{W_b + W_m}$$

The t-statistic (t^*) is now compared with the comparison t-statistic (t_c) using the following decision-rule:

> If *t^* is equal to or larger than* t_c, then conclude that there most likely *has been a significant increase* in this specific parameter.
>
> If *t^* is less than* t_c, then conclude that most likely *there has not been a change* in this specific parameter.

The t-statistic for testing pH and similar monitoring parameters is constructed in the same manner as previously described except the negative sign (if any) is discarded and the caveat concerning the negative value is ignored. The standard (two-tailed) tables are used in the construction t_c for pH and similar monitoring parameters.

If t^* is equal to or larger than t_c, then conclude that there most likely *has been a significant increase* (if the initial t^* had been negative, this would imply a significant decrease). If t^* is less than t_c, then conclude that there most likely has been no change.

A further discussion of the test may be found in *Statistical Methods* (6th Edition, Section 4.14) by G. W. Snedecor and W. G. Cochran, or *Principles and Procedures of Statistics* (1st Edition, Section 5.8) by R. G. D. Steel and J. H. Torrie.

[47 FR 32367, July 26, 1982]

STANDARD T-TABLES 0.05 LEVEL OF SIGNIFICANCE

Degrees of freedom	t-values (one-tail)	t-values (two-tail)
1	6.314	12.706
2	2.920	4.303
3	2.353	3.182
4	2.132	2.776
5	2.015	2.571
6	1.943	2.447
7	1.895	2.365
8	1.860	2.306
9	1.833	2.262
10	1.812	2.228
11	1.796	2.201
12	1.782	2.179
13	1.771	2.160
14	1.761	2.145
15	1.753	2.131
16	1.746	2.120
17	1.740	2.110
18	1.734	2.101
19	1.729	2.093
20	1.725	2.086
21	1.721	2.080
22	1.717	2.074
23	1.714	2.069
24	1.711	2.064
25	1.708	2.060
30	1.697	2.042
40	1.684	2.021

Adopted from Table III of *Statistical Tables for Biological, Agricultural, and Medical Research* (1947, R. A. Fisher and F. Yates).

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APPENDIX D

LABORATORY CASE NARRATIVE

CASE NARRATIVE

Client Name: Safety-Kleen (Colfax)
Project Name: Annual Soils
Project Number:
Sample Delivery Group: D2H080367
Narrative Date: 08/26/02

Sample Receipt

- The following report contains the analytical results for twenty-one samples and one trip blank, submitted to STL Denver by Safety-Kleen (Colfax), Inc. The samples were received intact at a temperature of 2.4°C, on August 8, 2002, according to documented sample acceptance procedures. Results for the following analyses can be found in this report: GC/MS Volatiles, HPLC Explosives and Total Metals.

- Sample Trip Blank requests both GC/MS Volatiles and Explosives on the chain-of-custody; however, only one 1x40mL vial was received. The sample was logged in for GC/MS Volatiles method 8260B. The client was notified on August 9, 2002.

- Percent solids was not requested on the chain-of-custody form. Per client instruction, percent solids analysis was performed, as all results must be reported on a dry-weight basis for this project.

- A sample ID discrepancy was noted between the information listed on the sample container label and the information listed on the chain-of-custody for STL Denver number D2H080367-17. The sample ID, S05-0802, was taken directly from the sample container label.

- No other anomalies were encountered during sample receipt.

GC/MS Volatiles

- Sample analysis did not reveal any detected target analytes at or above Safety-Kleen (Colfax)'s RLs, with the exception of the items noted in the following table.

Sample ID	Parameter	Detection	RL	Units
S06-0802	Acetone	0.011	0.011	mg/kg
	Ethanol	1.9	1.1	mg/kg
	Methylene chloride	0.0069	0.0057	mg/kg
S04-0802	Methylene chloride	0.0067	0.0056	mg/kg

- The samples were analyzed within holding time and without incident, with the exception of the following items noted.

- Several samples exhibited surrogate recoveries outside the QC control limits, biased high, for Toluene-d8. This is an indicator that data may be biased high. As no detectable concentrations are present in the samples, corrective action is deemed unnecessary. The following table details the associated outliers.

Sample ID	Surrogate	%Rec	Recovery Limits
S09-0802	Toluene-d8	123	77-118
S11-0802	Toluene-d8	119	77-118
S0FF1-0802	Toluene-d8	120	77-118
S15-0802	Toluene-d8	128	77-118
S02-0802	Toluene-d8	139	77-118

- Client specific, as well as, laboratory generated MS/MSD have been provided. All spike parameters were within QC control limits with the exception of the items noted in the following table. The acceptable LCS/LCSD analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Parameter	QC Batch/ Specific Sample	MS %Rec	MSD %Rec	Recovery Limits	RPD	RPD Limits
Chlorobenzene	SBD-0802	77	69	73-113	12	0-25

- Samples S09-0802 and S15-0802 exhibited internal standard 1,4-Dichlorobenzene-d4 outside the QC control limits. Upon repreparation and reanalysis, the internal standard outlier was still present, confirming that this anomaly is most likely due to matrix interference. The original analysis data have been reported.

Explosives

- Sample analysis did not reveal any detected target analytes at or above Safety-Kleen (Colfax)'s RLs. The samples were analyzed within holding time and without incident.

Total Metals

- Sample analysis revealed detectable concentrations at or above Safety-Kleen (Westmorland)'s RLs, as detailed in the Executive Summary-Detection Highlights Report. The samples were analyzed within holding time and without incident, with the exception of the following items noted.

- Serial dilution of a digestate in analytical batch 2225489 indicates that physical and chemical interferences are present for Lead. Results in the analytical report have been flagged with an "L".

- Client specific, as well as, laboratory generated MS/MSD have been provided. All spike parameters were within QC control limits with the exception of the items noted in the following table. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Parameter	QC Batch/ Specific Sample	MS %Rec	MSD %Rec	Recovery Limits	RPD	RPD Limits
Antimony	S07-0802	79	80	82-105	1.2	0-20
Antimony	QC Batch 2225491	48	51	82-105	6.7	0-20
Barium	QC Batch 2225491	113	112	87-110	0.33	0-20

These data and reporting limits are being used specifically to meet the needs of this project. All RLs are supported by STL Denver's Method Detection Limits (MDLs). Reporting limits in this report are at or above the MDL.

I certify that the data presented in this report are accurate, complete, and meets the minimum quality assurance standards in 40-CFR 136, 40-CFR 141, and/or SW846. The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. An assessment of the quality of the data, noting any exceptions, outliers, and/or problems encountered have been narrated herein.

Cheryl Skenar

Cheryl Skenar
Project Manager

8/26/02
Date

APPENDIX W

RISK ASSESSMENT (1990)

R & D Manufacturing, Inc.

Colfax, Louisiana

ENSR

Final Health Risk Assessment Protocol for the R & D Thermal Treatment System

ENSR Consulting and Engineering

(Formerly ERT)

September 1990

Document Number 3246-001-500

CONTENTS

1.0 INTRODUCTION 1-1

2.0 AIR DISPERSION MODELING 2-1
2.1 Model Selection 2-1
2.1.1 Dispersion Environment 2-1
2.1.2 Source Type 2-1
2.1.3 Averaging Period 2-2
2.1.4 Meteorological Data 2-2
2.1.5 Summary of Model Selection 2-2
2.2 Source Data 2-3
2.3 Receptor Data 2-3

3.0 HEALTH RISK ASSESSMENT 3-1
3.1 Hazard Identification 3-1
3.2 Dose-Response Assessment 3-2
3.3 Exposure Assessment 3-2
3.4 Risk Characterization 3-4

4.0 REFERENCES 4-1

APPENDICES

LIST OF TABLES

3-1 RfDs and CPFs for the Target Parameters 3-3

1.0 INTRODUCTION

ENSR Consulting and Engineering has been retained by R&D Fabricating and Manufacturing, Inc. located in Colfax, Louisiana to prepare a risk assessment protocol for a Subpart X permit for an open explosives thermal treatment system. The purpose of the risk assessment is to provide estimates of the off-site environmental impacts from the facility.

Presently, R&D thermally treats a large number and variety of different RCRA reactive waste streams. Examples of major reactive waste streams destroyed at the R&D facility includes:

- Ammunition,
- Flares,
- High Explosives and Oil-Well Shaped Charges,
- Air Bag Initiators.

Propellants and explosives are treated in circular, 4' diameter cement bunkers utilizing diesel fuel for ignition. Most thermal treatment at R&D is approximately 8 minutes per batch. Waste stream treatment batches per unit vary from approximately 15 to 30 lbs/hr.

The target compounds that have been identified for inclusion in the risk assessment program include:

- Trace elements - Al, Ba, Cd, Cr, Cu, Ni, Pb, Sb, Se, and Zn,
- Polycyclic aromatic hydrocarbons (benzo(a)pyrene, benzo(e)pyrene, benzo(j)fluoranthene, chrysene, benzo(k)fluoranthene, benzo(b)fluoranthene, coronene, indeno(c,d)-pyrene, dibenzo(a,h)anthracene),
- Nitro-substituted polycyclic aromatic hydrocarbons (1 -nitropyrene),
- RDX (Cyclotrimethylenetrinitramine), DNT (2,4 dinitrotoluene, 2,6 dinitrotoluene), TNT (2,4,6 trinitrotoluene),
- Volatile organic compounds, primarily benzene, toluene, xylenes, and ethylbenzene.

The emission rates for the above list of chemicals will be developed from a source characterization program. The emission products from the thermal treatment system will be subject to air dispersion modeling based on typical plume characteristics for the R&D operations. The estimated environmental concentrations developed from the air dispersion modeling will provide the necessary input for estimating off-site impacts from the thermal treatment system.

The present risk assessment protocol document provides U.S. EPA with an overall description of the air dispersion modeling and health risk assessment (HRA) approaches that ENSR will utilize to evaluate the off-site environmental impacts from the R&D thermal treatment system.

2.0 AIR DISPERSION MODELING

The potential air quality impacts resulting from the operation of the thermal treatment system will be estimated using an air quality dispersion model approved by the U.S. EPA and LDEQ. An air quality model is a set of mathematical equations which relates the release of air pollutants to corresponding concentrations of pollutants in the ambient air taking into consideration the dispersive characteristics of the atmosphere.

2.1 Model Selection

The suitability of an air quality dispersion model for a particular application is dependent upon several factors. In this study four selection criteria will be evaluated. These criteria are:

- dispersion environment,
- source type,
- averaging period of concern, and
- availability of representative meteorological data.

2.1.1 Dispersion Environment

Land use within a 3 kilometer radius of the facility was examined in accordance with the land use classifications of Auer (1978). Areas representative of urban and rural environments were identified from U.S. Geologic Survey (USGS) topographic maps. The dispersion environment surrounding the R&D facility is predominantly rural, therefore, rural dispersion coefficients will be used in the model analysis.

2.1.2 Source Type

The thermal treatment system at the R&D facility presents an unusual source type. The thermal treatment system consist of circular 4 ft diameter cement bunkers. The wastes are placed in the bunkers and ignited using diesel fuel for ignition. The thermal treatment process lasts approximately 8 minutes. The wastes burn at relatively high temperatures and initial observations of the process indicate that there is a substantial plume rise due to the high plume buoyancy.

The thermal treatment system will be modeled as a volume source. The initial vertical dimension, σ_{zo}, and the initial horizontal dimension, σyo, will be calculated according to the guidance in the

Industrial Source Complex Dispersion Model User's Guide (EPA, 1987) The initial vertical dimension will be based on observation of plume rise made during the source testing program.

2.1.3 Averaging Period

The purpose of the dispersion model analysis is to support the health risk assessment. The health risk assessment to be performed in this study will focus on the long-term chronic affects. Therefore, a dispersion model which predicts long-term, i.e., annual average concentrations will be used in this study.

2.1.4 Meteorological Data

Meteorological data required for long-term dispersion modeling consist of joint frequency (STAR) distributions of wind speed, wind direction, and atmospheric stability. The available STAR distributions include one year (1973-1974) of data from the Alexandria, LA airport. The National Climatic Center indicated that additional hourly data is available from the Alexandria, LA airport that can be placed into the STAR format.

2.1.5 Summary of Model Selection

Based on the above discussion, the EPA Industrial Source Complex long-term (ISCLT) model will be used in this analysis. This model has the following capabilities which will be used in this analysis:

- ability to simulate rural dispersion,
- ability to simulate volume source types, and
- long-term mode using STAR meteorological distribution.

The regulatory default mode of ISCLT will be used in this study.

2.2 Source Data

The thermal treatment system will be modeled as a volume source. The required source inputs for a volume source are:

- emission rate,
- location,
- release height,
- initial vertical dimension,

- initial horizontal dimension.

The emission rate will be based on the source characterization study. Annual emissions will be estimated based on total annual throughput of each waste stream. Initial vertical dimension will be based on average plume rise observed during the source characterization study. Initial horizontal dimension, although input to the ISCLT model is not used in the calculation of concentrations since this model in its long-term mode averages the horizontal concentration over the sector width.

2.3 Receptor Data

Receptors will be arranged in a polar style receptor grid centered on the thermal treatment system. The polar grid will consist of 16 radials centered on each of the 16 wind direction sectors of the STAR frequency distribution and 10 receptor rings spaced 100 meters apart. The first receptor ring in each radial direction will start at the nearest fenceline distance in that sector. No receptors will be placed within fenced plant property. Receptor heights will be identified from USGS topographic maps according to accepted EPA techniques.

3.0 HEALTH RISK ASSESSMENT

The human health risk assessment (HRA) will be conducted according to the U.S. EPA risk assessment guidelines of 1986 (EPA/600/8-87-045). The U.S. EPA guidelines include the HRA recommendations of the National Research Council. The HRA includes the following steps.

1. **Hazard Identification:** Selection of chemicals measured in the source characterization program for which sufficient exposure could lead to adverse human health effects.

2. **Dose-Response Assessment:** Determination of the relationship between the magnitude of exposures and the occurrence of specific health effects for each chemical.

3. **Exposure Assessment:** Determination of the potential human exposures to specific airborne pollutants emitted by the facility.

4. **Risk Characterization:** Description of the nature and magnitude of the health risk associated with exposure to each chemical.

The following discussion provides a brief description of the approach used to satisfactorily complete each of the above steps.

3.1 Hazard Identification

The substances included in the R&D thermal treatment source characterization program includes two classes of emission products:

- Undestroyed waste and container constituents; this includes RDX, DNT, TNT and trace metals (Al, Ba, Cd, Cr, Cu, Ni, Pb, Sb, Se, and Zn),

- Products of incomplete combustion (PICs); this includes polycyclic aromatic hydrocarbons (PAHs), nitro-substituted PAHs and volatile organic compounds (VOCs).

These chemicals were selected as the target substances in the source characterization program, in part, due their known, suspected, or potential chronic human health effects. The HRA will include both the substances discussed above that are found in measurable quantities (i.e., above the sample collection and analytical method detection limits) and those that are not detectable

during the source characterization study. Those contaminants found below the method detection limits will be set at the detection limit value for inclusion in the HRA.

3.2 Dose-Response Assessment

In the present HRA, Reference Doses (RfDs) and Cancer Potency Factors (CPFs) will be selected from "U.S. EPA Health Effects Assessment Summary Tables - Fourth Quarter FY 1989, 10/89". Additional CPF data regarding TNT was provided by EPA Region VI (Roberts, W.C. Undated. Health Effects and Risk Assessment of Munitions. ODW-USEPA. Unpublished Presentation Notes). This information is summarized for the target compounds in Table 3-1. Both the Cu and Pb RfD were developed by ENSR from existing environmental standards. The drinking water standard for Cu was utilized to develop a RfD for this chemical, while the Pb RfD was derived from the NAAQS of 1.5 $\mu g/m^3$ on a 90 day average basis.

For the present HRA, only 10% of the total Cr values will be assumed to be in the form of hexavalent Cr. In a recent U.S. EPA report on hazardous waste incineration, "Technical Background Document for Control of Metals and HCl Emissions from Hazardous Waste Incinerators, OSW, 8/89", hexavalent Cr emissions were assumed to be 10% of the total Cr emissions for the purposes of impact assessment. This assumption regarding the relative percent emissions of hexavalent Cr is conservative for the R&D thermal treatment system. For example, a recent U.S. EPA document "Technical Support Document for the Incineration of Sewage Sludge" indicates that U.S. EPA is assuming for regulation development that a reasonable, worst case sewage sludge incineration emission factor for hexavalent Cr is 1% of the total Cr emissions. Further supporting U.S. EPA data suggests that combustion of residual and distillate oils results in a hexavalent Cr emission rate that is 0.6% of the total Cr emitted from the tested sources (EPA 1989. Estimating Air Toxics Emissions from Coal and Oil Combustion Sources. EPA-450/2-89-001).

Presently, U.S. EPA has not published RfDs and/or CPFs for the target PAHs and 1-NO_2 pyrene. For the purposes of the present HRA, ENSR will utilize the RfD for naphthalene for non-carcinogenic PAHs and the CPF for coke oven emissions for carcinogenic PAHs and 1-NO_2 pyrene.

3.3 Exposure Assessment

Initially, the exposure assessment for the R&D thermal treatment system will focus on the Maximum Exposed Individual (MEI). Depending on the outcome of this very conservative approach, further refinements of the exposure assessment may take place. The exposure assessment provides an indication of the long term dose received by the population from the

TABLE 3-1

RFDs AND CPFs FOR THE TARGET PARAMETERS[a]

Chemical	RfD (mg/kg/day)	CPF (mg/kg/day^{-1})
Al	Data Inadequate	NA
Ba	1E-4	NA
Cd	1E-3[b]	6.1
Cr	1[c]	41
Cu	3.3E-2[d]	NA
Ni	2E-2	8.4E-1[h]
Pb	4.3E-1[e]	NA
Sb	4E-4[f]	NA
Se	3E-3	NA
Zn	2E-1	NA
BaP	NA	2.2[i]
BeP	See Below[g]	
BkF	NA	
BbF	NA	
Cor	See Below[g]	
IcdP	NA	
DbahA	NA	
1-NO_2 Pyrene	NA	
RDX	3E-3	1.1E-1
DNT	NA	6.8E-1
TNT	NA	3E-1
Benzene	NA	2.9E-2
Ethylbenzene	1E-1	NA
Toluene	3E-3	NA
Xylenes	2	NA

a All Values From U.S. EPA Health Effects Summary Tables 4th Quarter 1989, except TNT which was provided by EPA Region VI.

b Ingestion RfD for Cd for food.

c Ingestion RfD for Trivalent Cr.

d RfD developed for Cu based on acceptable water conc of 1.3 mg/l and a 70 kg human with a drinking rate of 2 lpd.

e RfD for Pb derived from NAAQS of 1.5 $\mu g/m^3$ and a 70 kg human with an inhalation rate of 20 m^3/day.

f Ingestion RfD for Sb metal.

g Benzo(e)pyrene and Coronene are considered non-carcinogens; thus the ingestion RfD for naphthalene, 4E-3 mg/kg/day, is utilized in the HRA.

h Inhalation CPF for Ni based on Ni refinery dust.

i CPF for total carcinogenic PAHs and 1-NO2 pyrene based on CPF for coke oven emissions, which is called coal tars in U.S. EPA Health Effects Summary Tables 4th Quarter 1989. All of the above PAHs, except benzo(e)pyrene and coronene, and 1-NO_2 pyrene are considered carcinogenic, however, U.S. EPA has not published indivdual CPFs for these pollutants.

actions of a specific facility. The exposure assessment in the present HRA will follow the U.S. EPA guidelines found in "Risk Assessment Guidance for Superfund. Volume I. Human Health Evaluation. EPA/540/1-89-002".

The exposure pathways for the present analysis will include only direct intake routes. Direct exposure routes in the present HRA includes inhalation of the target compounds. Indirect exposure routes include the ingestion of soil, vegetation and fish which have been contaminated through plume deposition, and chemical transport and uptake. Conservative inhalation exposure models, such as those contained in EPA/540/1-89-002, will be utilized for estimating human exposures to the airborne emissions from the R&D thermal treatment system.

3.4 Risk Characterization

Hazard indices and estimated lifetime excess cancer risks were generated for the appropriate chemicals based on the Maximum Exposed Individual (MEITABLE 3). The hazard indices are applied to non-carcinogenic chemicals and represent a comparison between the estimated dose for the MEI and the RfD:

(Est. dose for the MEI/ RfD) = Hazard index

Hazard index values less than 1.0 indicate that adverse non-carcinogenic health effects are not expected to result for the MEI.

The estimated lifetime excess cancer risks for individual chemicals were determined as follows:

(Est. dose for the MEI * CPF) = Lifetime Cancer Risk

The lifetime excess cancer risks for individual chemicals and the total number of carcinogenic emission products are evaluated based on the assumption that any estimated cancer risks for the MEI that are less than or equal to one in a million (1E-6) are considered small. The initial risk analysis will utilize an individual chemical, 1E-6 lifetime cancer risk level goal. This risk assessment goal is extremely conservative. As a comparison, the U.S. EPA has recently developed a National Emission Standard for Hazardous Air Pollutants (NESHAPs) limit for benzene from coke by-product facilities utilizing a 4E-4 excess estimated cancer risk level for the MEI determined during regulation development.

4.0 REFERENCES

1. U.S. EPA 1987. The Health Risk Assessment Guidelines of 1986. (EPA/600/8-87-045).

2. U.S. EPA 1989. Health Effects Assessment Summary Tables - Fourth Quarter FY 1989, 10/89. OERR 9200.6-303-(89-4).

3. U.S. EPA 1989. Technical Background Document for Control of Metals and HCl Emissions from Hazardous Waste Incinerators, OSW, 8/89.

4. U.S. EPA 1989. Technical Support Document for the Incineration of Sewage Sludge. OWRS.

5. U.S. EPA 1989. Estimating Air Toxics Emissions from Coal and Oil Combustion Sources. EPA-450/2-89-001.

6. U.S. EPA 1989. Risk Assessment Guidance for Superfund. Volume I. Human Health Evaluation. EPA/540/1-89-002.

ENSR

Formerly ERT

September 5, 1990

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Mr. William K. Honker
Chief
RCRA Permits Branch
USEPA
Region 6
1445 Ross Avenue
Suite 1200
Dallas, TX 75202-2733

Subject: Comments Regarding USEPA's Notice of Deficiency (NOD) for the R&D Fabricating and Manufacturing, Inc. Source Characterization Plan

Dear Mr. Honker:

In response to the above referenced NOD, ENSR Consulting and Engineering has prepared a point-by-point response to the USEPA NOD for the R&D facility.

1 - A risk assessment protocol has been prepared for the evaluation of the impacts from the R&D facility operations. This protocol includes the target chemicals, air dispersion models, and the impact criteria to be utilized to evaluate off-site impacts from the facility. The risk assessment is scoped to address human inhalation exposures as a result of air emissions from the facility. ENSR's previous discussions with USEPA personnel, Chet Ozmund and Jon Mack, suggested that the agency was only interested in human inhalation health risks associated with emissions from the R&D facility.

2 - The source characterization plan includes a listing of all wastes that will be treated during the monitoring program. Under separate cover, Laidlaw Environmental Services has provided USEPA with two volumes describing the chemical composition of the waste streams.

3 - Appendix C contains the SOP for filter processing. This Appendix is included in the attached source characterization plan.

4 - Each of the chemical constituents listed in item #4 of the NOD were evaluated by ENSR. In the revised source characterization program for the R&D facility, DNT and TNT have been added to the list of the chemical constituents. The following substances were not included in the source characterization program based on the information shown below:

Compound	Reason for Exclusion
ZnCl	To be measured as Zn
NC	Not Toxic
TNG	Not covered in standard analytical methods
HMX	Very low toxicity, low anticipated throughput quantities, i.e. < 10,000 lbs/yr
White Phos.	Very unstable, no validated sampling procedure
Sodium Azide	Very unstable, no validated sampling procedure
DNB	Not in major waste streams, i.e. < 1,000 lbs/yr
DIMP	Not in major waste streams, i.e. < 100 lbs/yr
DMMP	Not in major waste streams, i.e. < 100 lbs/yr
NG	Not in major waste streams, i.e. < 100 lbs/yr
Hexachloro-ethane	Not in major waste streams, i.e. < 100 lbs/yr

Representatives from USEPA Region VI asked ENSR to provide further elaboration regarding our decision not to include HMX in the source characterization program. According to information provided to ENSR by USEPA Region VI personnel, HMX is approximately 200 times less toxic than RDX and TNT based on lifetime human exposures. Information provided to ENSR by R&D suggested that the total maximum annual quantity of HMX to be received by the facility will not exceed 10,000 lbs/yr.

5 - The source characterization plan includes PICs: VOCs, PAHs and nitro-PAHs. The formation of novel explosives during the thermal treatment process appears to be a rather unlikely possibility given the reactivity of these materials under conditions of elevated temperatures. The source characterization program is not a research project. The purpose of the program is develop information that can be utilized to develop plausible estimates of the off-site impacts from the R&D thermal treatment operations. The inclusion of chemicals which have not been characterized in the waste streams or in thermal treatment by-products is beyond the scope of the R&D source characterization program.

6 - HCl releases from the thermal treatment of ammonium perchlorate can be estimated by utilizing a worst-case materials balance approach. Based on information provided to ENSR by R&D, the maximum, annualized worst-case emission rate for HCl is approximately 9,200 lbs/yr and on a worst-case hourly basis, a HCl emission rate of 9.2 lbs/hr.

7 - The use of a "tracer", such as SF_6, to confirm that the plume is intercepted by the samplers is not appropriate for the R&D operations. Based on the release characteristics of the thermal treatment plumes at R&D, it is unlikely that the passive release of a "tracer" gas will mimic the atmospheric distribution of the plume constituents. This is particularly true since the most important classes of chemicals released during the thermal treatment operations are particulate-phase materials. All source sampling will only occur under the atmospheric conditions as described in section 4.3 of the source characterization plan. A video tape will be taken for each thermal treatment operation sampled. The visual record found on the video tape will be utilized to ascertain the physical dimensions of the plume. This information along with the detailed, on-site meteorological and atmospheric concentration data will be utilized to estimate the emission rates from the thermal treatment operations.

8 - Based on the short duration of each burn (1 hour), the meteorological conditions were selected based on the assumption that during the burn virtually 100% of the time a portion of the plume is being sampled. All source sampling will only occur under the atmospheric conditions as described in section 4.3 of the source characterization plan. A video tape will be taken for each thermal treatment operation sampled. The visual record found on the video tape will be utilized to ascertain the physical dimensions of the plume. This information along with the detailed, on-site meteorological data will be utilized to estimate the release from the thermal treatment operations.

9 - The list of PAHs to be included in the source characterization plan have five or more, fused-benzene rings. These PAHs have been shown to be quantitatively collected by the high-volume air sampler equipped with glass fiber filters. Also, these PAHs are generally the most important from a human health perspective. Finally, since each burn will occur over a short, one hour time period, it is important to collect as large a sample volume as possible to reach analytical detection limits. The high-volume air sampler will collect approximately 5 times the air volume of the PS-1 samplers described in T-013. The additional sampling volume is required for the short duration of the sample collection periods.

10 - ENSR proposes to include phenol in the source characterization program utilizing USEPA Method T-08. ENSR has not included naphthalene and pyrene in the present source characterization program, due to the need to utilize PS-1 samplers and the low toxicity of these PAH compounds. Also,

N-nitrosodiphenylamine was not included because the available USEPA Method T-07 is not a provided service by commercial analytical laboratories.

11 - ENSR agrees with this comment and has included the revisions in the attached source characterization plan.

12 - Atomic absorption spectrometry instruments subject to regular calibration and maintenance allow for the generation of weekly calibration curves for each trace element. Daily calibration samples of known concentrations are run to confirm that the existing calibration curve is still relevant. Significant deviations from the calibration curves during the running of the daily calibration samples would facilitate the need for the generation of new calibration curves.

13 - Comment has been addressed in the revisions in the attached source characterization plan.

14 - Comment has been addressed in the revisions in the attached source characterization plan.

15 - Comment has been addressed in the revisions in the attached source characterization plan.

16 - The document provided to USEPA is a **source characterization program**, not an ambient air monitoring program. As stated in the source characterization program, worst-case sulfur and nitrogen oxides emission rates will be estimated utilizing a materials balance approach. ENSR contacted Mr. Bruce Polkowsky of USEPA OAQPS to discuss the agencies progress concerning a shorter-term SO_2 NAAQS. According to Mr. Polkowsky, USEPA is just in the very beginning stages of investigating this issue, but does not have sufficient health effects data to recommend a specific standard. To develop a shorter-term SO_2 standard, USEPA must first conduct basic health effects research to support NAAQS development. Thus Mr. Polkowsky advised ENSR that USEPA is a long way (i.e., many years) from the development of a shorter-term SO_2 NAAQS.

17 - See ENSR response to comment #9.

18 - The VOC sampling method included in the source characterization program is not old technology. This method is a modification of SW-846 Method 0030 "Volatile Organic Sampling Train (VOST)" which is recommended by USEPA for the

sampling of trace quantities of VOC in combustion stacks. This sampling method has been adapted by ENSR for use in ambient air monitoring programs for VOC. By maintaining proper sampling flow rates and by utilizing the tandem VOST sorbent tubes required in Method 0030, breakthrough for the target parameters (aromatic hydrocarbons) is negligible. ENSR recently conducted a six-month ambient air monitoring program for aromatic hydrocarbons utilizing this method and achieved an overall system precision (includes sampling and analysis) of +/- 6%. Thus the proposed VOC sampling method is relevant for the present application. Per ENSR's discussions with USEPA Region VI personnel, we will spike all VOST tubes with a surrogate to determine overall recoveries from the sampling system.

Please contact me at 201-560-7323, it you have any questions related to the above. Thank you.

Sincerely,
ENSR Consulting and Engineering

Ronald Harkov, Ph.D.
Senior Air Quality Scientist

cc. L. Longshore
R. Crain
M. Greenberg
M. Dennis
M. Young

ENSR Doc. No. 3246-001-200,B1,D2

APPENDIX X

SOIL SURVEY

BEST COPY

for the following Pages

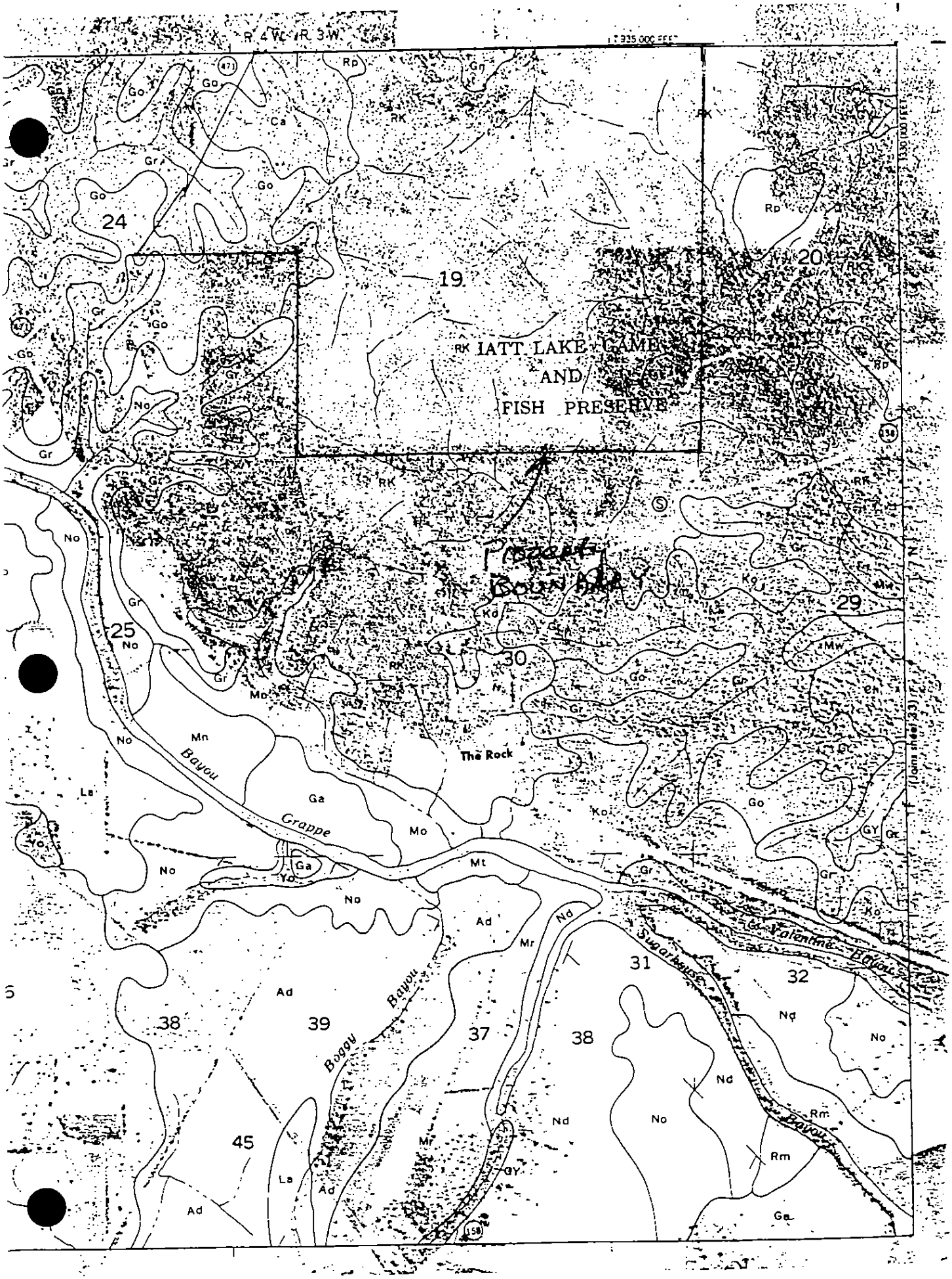
2

United States
Department of
Agriculture

Conservation
Service

In cooperation with
Forest Service
the Louisiana
Agricultural
Experiment Station
and the Louisiana
State Soil and
Water Conservation
Committee

Soil Survey of Grant Parish, Louisiana



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

SOIL LEGEND

The first letter, always a capital, is the initial letter of the soil name. The second letter is a capital if the mapping unit is broadly defined 1/; otherwise, it is a small letter. Map units without slope designation have the percent slope given in the map unit description.

1/ The composition of these units is more variable than that of others in the survey area but has been controlled well enough to be interpreted for the expected use of the soils.

SYMBOL	NAME
Ad	Armistead clay
Br	Briley loamy fine sand, 5 to 12 percent slopes
Ca	Caddo silt loam
Cd	Cadeville very fine sandy loam, 2 to 5 percent slopes
Ce	Cadeville very fine sandy loam, 5 to 12 percent slopes
Ch	Cahaba fine sandy loam, 1 to 3 percent slopes
Ga	Gallion silt loam
Gb	Gallion silty clay loam
Gc	Gallion silt loam, occasionally flooded
Gn	Glenmora silt loam, 1 to 3 percent slopes
Go	Gore silt loam, 1 to 5 percent slopes
Gr	Gore silt loam, 5 to 12 percent slopes
Gu	Guyton silt loam
GY	Guyton and Cascilla soils, frequently flooded
Ko	Kolin silt loam, 1 to 3 percent slopes
La	Latanier clay
Ma	Malbis fine sandy loam, 1 to 5 percent slopes
Me	Mayhew silty clay loam
Mf	Metcalf very fine sandy loam
Mn	Moreland silt loam, overwash
Mo	Moreland silty clay loam
Mr	Moreland clay
Mt	Moreland clay, gently undulating
Mw	Moreland clay, occasionally flooded
Nd	Norwood silt loam
No	Norwood silty clay loam
Nr	Norwood silt loam, gently undulating
Pt	Pits, gravel
RK	Rigolette-Kisatchie association, hilly
Rm	Roxana very fine sandy loam
Rn	Roxana very fine sandy loam, occasionally flooded
Ro	Roxana very fine sandy loam, frequently flooded
Rp	Ruston fine sandy loam, 1 to 5 percent slopes
RR	Ruston-Cadeville association, moderately rolling
RS	Ruston-Smithdale association, moderately rolling
Sm	Smithdale fine sandy loam, 5 to 12 percent slopes
St	Sumter Variant silty clay loam, 1 to 5 percent slopes
Un	Una silty clay, frequently flooded
Uo	Urbo Variant silty clay loam, occasionally flooded
Va	Vaiden silty clay, 1 to 5 percent slopes
Yo	Yorktown silty clay

conserve moisture and control erosion. Most crops respond well to additions of fertilizer and lime.

This soil is moderately well suited to pasture. Droughtiness, slope, low fertility, and the hazard of erosion are the main limitations. Pasture plants are difficult to establish because of droughtiness. Suitable pasture plants are improved bermudagrass, weeping lovegrass, bahiagrass, and crimson clover. Applications of fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is well suited to woodland. The potential for pine trees is moderately high. Traction is poor when the surface layer of this soil is dry, and seedling mortality is generally moderately high because of droughtiness. Conventional methods of harvesting trees can be used.

This soil is moderately well suited to urban uses. Steepness of slopes and the hazard of erosion are the main limitations. Cutbanks of shallow excavations cave easily. Preserving the existing plant cover during construction helps to control erosion. Plant cover can be established and maintained by properly fertilizing, seeding, mulching, and shaping of slopes.

This soil is moderately well suited to recreational development. Steepness of slope and the sandy surface layer are the main limitations. Cuts and fills should be seeded or mulched. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover.

This Briley soil is in capability subclass IVe and woodland group 3s.

Ca—Caddo silt loam. This level, poorly drained soil is on broad flats in the terrace uplands. Areas range from about 30 acres to 500 acres. Slopes range from 0 to 1 percent.

Typically, the surface layer is grayish brown, very strongly acid silt loam about 4 inches thick. The subsurface layer is about 17 inches thick. It is grayish brown, strongly acid silt loam in the upper part and light brownish gray, strongly acid silt loam in the lower part. The subsoil to a depth of about 80 inches is light brownish gray, mottled, strongly acid silty clay loam in the upper and middle parts and gray, mottled, very strongly acid silty clay loam in the lower part.

Included with this soil in mapping are a few small areas of Glenmora and Guyton soils. These areas make up about 10 percent of the map unit. Glenmora soils are on more sloping positions than Caddo soil and are redder throughout. Guyton soils are on lower positions and do not have red mottles in the subsoil.

This Caddo soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a slow rate. Water runs off the surface at a slow rate and stands in low places for short periods after heavy rains. A seasonal high water table fluctuates between a depth of 2 feet and the surface from December through April. This soil is slow to dry out in the spring; however, crops suffer from lack of water during dry periods in the summer and fall of most years. The shrink-swell potential is low.

Most of the acreage of this soil is in woodland. A small acreage is in pasture.

This soil is moderately well suited to cultivated crops. The main crops are corn and soybeans. Wetness is the main limitation. Potentially toxic levels of exchangeable aluminum within the rooting zone are also a limitation. A drainage system is needed for most cultivated crops and pasture plants. Land grading and smoothing improves the surface drainage and permits more efficient use of farm equipment. Surface crusting and soil compaction can be reduced by returning crop residue to the soil. Crops respond well to additions of lime and fertilizer, which help to overcome low fertility and reduce the high levels of exchangeable aluminum.

This soil is well suited to pasture. Wetness and low fertility are the main limitations. Suitable pasture plants are common bermudagrass, bahiagrass, ryegrass, tall fescue, white clover, and southern winterpeas. Grazing when the soil is wet results in compaction of the surface layer. The use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture and the soil in good condition. Applications of fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is well suited to woodland. The potential for pine trees is high; however, the use of equipment is limited, and seedling mortality is generally moderately high because of wetness. Reforestation after harvesting needs to be carefully managed to reduce competition from undesirable understory plants.

This soil is poorly suited to urban uses. Wetness is the main limitation. Excess water can be removed by using shallow surface ditches and by proper grading. Slow permeability and the high water table increase the possibility of failure of septic tank absorption fields.

This soil is poorly suited to recreational development. Wetness is the main limitation. Good surface drainage should be provided for intensively used areas, such as playgrounds.

This Caddo soil is in capability subclass IIIw and woodland group 2w.

Cd—Cadeville very fine sandy loam, 2 to 5 percent slopes. This gently sloping, moderately well drained soil is on ridgetops and upper side slopes in the terrace uplands. Areas range from about 20 acres to 350 acres.

Typically, the surface layer is dark grayish brown, extremely acid very fine sandy loam about 3 inches thick. The subsurface layer is brown, very strongly acid very fine sandy loam about 3 inches thick. The subsoil is yellowish red, mottled, extremely acid clay in the upper part; red, mottled, extremely acid clay in the middle part; and light brownish gray, mottled, extremely acid clay in

by using proper engineering designs and by backfilling with material that has low shrink-swell potential. Excess water can be removed by using surface ditches and by proper grading.

This soil is well suited to recreational development. It has few limitations for this use.

This Gallion soil is in capability subclass IIw and woodland group 2o.

Gc—Gallion silt loam, occasionally flooded. This level, well drained soil is on natural levees of the Red River and its distributaries. It is not protected by manmade levees and floods occasionally. Areas range from about 20 acres to 400 acres. Slope is dominantly less than 1 percent.

Typically, the surface layer is dark grayish brown, medium acid silt loam about 9 inches thick. The subsoil is yellowish red, medium acid silt loam in the upper part and reddish brown, slightly acid silt loam in the lower part. The underlying material to a depth of about 65 inches is yellowish red, mildly alkaline very fine sandy loam.

Included with this soil in mapping are a few small areas of Moreland and Roxana soils. These areas make up about 10 percent of the map unit. Moreland soils are in lower positions than Gallion soils and are in depressional areas. They have more clay throughout than Gallion soils. Roxana soils are on higher positions on the natural levees and have more sand and slightly less clay throughout.

This Gallion soil has medium fertility. Water and air move through this soil at a moderate rate. Water runs off the surface at a slow rate. Adequate water is available to plants in most years. This soil is not adequately protected from flooding. It may flood occasionally on a yearly basis, as well as during the cropping season. This soil has moderate shrink-swell potential.

Most of the acreage of this soil is in pasture. A small acreage is used for cultivated crops.

This soil is well suited to pasture. Suitable pasture plants are improved bermudagrass, common bermudagrass, bahiagrass, ryegrass, tall fescue, and white clover. Grazing when the soil is wet results in compaction of the surface layer, poor tilth, and excessive runoff. Use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture and the soil in good condition. Applications of fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. It is limited mainly by occasional overflow. In some years crops are damaged by flooding late in spring. Suitable crops are soybeans, grain sorghum, corn, and wheat. Land grading and smoothing improves surface drainage and permits more efficient use of farm equipment. A tillage pan forms easily if this soil is tilled when wet; however, chiseling or subsoiling can be used to break up the tillage pan. Tilth and fertility can be improved by returning crop residue to the soil.

This soil is well suited to woodland. The potential for hardwood trees is high; however, few areas remain in woodland.

This soil is poorly suited to urban uses. Wetness caused by flooding is the main limitation. Large earthern levees are needed to protect this soil from overflows from the Red River.

This soil is moderately well suited to recreational development. Flooding is the main limitation. Protection from flooding is needed.

This soil is in capability sublcass 2w and woodland group 2o.

Gn—Glenmora silt loam, 1 to 3 percent slopes. This very gently sloping, moderately well drained soil is on broad ridges and on side slopes along drainageways in the terrace uplands. Areas range from about 150 acres to 400 acres.

Typically, the surface layer is dark grayish brown, strongly acid silt loam about 5 inches thick. The subsurface layer is brown, medium acid silt loam about 4 inches thick. The subsoil is yellowish brown, medium acid silt loam and silty clay loam in the upper part. The next layer is light brownish gray, mottled, medium acid silty clay loam, and below that is gray and yellowish brown, mottled, medium acid silty clay loam to a depth of about 60 inches. The underlying material to a depth of about 80 inches is yellowish red, mottled, medium acid silty clay.

Included with this soil in mapping are a few small areas of Caddo and Guyton soils. These areas make up about 10 percent of the map unit. The poorly drained Caddo and Guyton soils are on broad flats and in depressional areas and are gray throughout.

This Glenmora soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a slow rate. A seasonal high water table is at a depth of about 2 to 3 feet from December to April. Plants are damaged by lack of water during dry periods in summer and fall of some years. This soil has moderate shrink-swell potential in the upper part of the subsoil and high shrink-swell potential in the lower part.

Most of the acreage of this soil is in woodland. A small acreage is in pasture.

This soil is well suited to woodland. The potential is high for pine trees. Use of equipment is somewhat limited because of wetness. Roads and landings can be protected from erosion by constructing diversions and by seeding cuts and fills. Conventional methods of harvesting timber generally can be used, but their use may be limited during rainy periods. These rainy periods are generally from December to April. Competing vegetation can be controlled by proper site preparation

and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is well suited to pasture. Low fertility and the hazard of erosion are the main limitations. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, vetch, and white clover. Where it is practical, seedbeds should be prepared on the contour or across the slope. Periodic mowing and clipping helps to maintain uniform growth, discourages selective grazing, and reduces clumpy growth. Applications of fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is well suited to cultivated crops. The main crops are soybeans, corn, and small grains. Low fertility, the hazard of erosion, and potentially toxic levels of exchangeable aluminum within the rooting zone are the main limitations. This soil is friable and easy to keep in tood tilth. It can be worked over a wide range of moisture content. Excessive cultivation can result in the formation of a tillage pan, but this pan can be broken by subsoiling when the soil is dry. The use of minimum tillage and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain soil tilth and content of organic matter. Crops respond well to additions of lime and fertilizer, which help to overcome low fertility and reduce the high levels of exchangeable aluminum. The use of minimum tillage and the construction of terraces, diversions, and grassed waterways help to control erosion. All tillage should be done on the contour or across the slope.

This soil is moderately well suited to urban uses. Wetness and slow permeability are the main limitations. Excess water can be removed by constructing shallow ditches and by proper grading. Slow permeability and the seasonal high water table increase the possibility of failure of septic tank absorption fields. Revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. The use of sandy backfill for the trench and long absorption lines helps to compensate for the slow permeability.

This soil is moderately well suited to recreational uses. Wetness and slow permeability are the main limitations. Good drainage should be provided for intensively used areas, such as playgrounds.

This Glenmora soil is in capability subclass IIe and woodland group 2w.

Go—Gore silt loam, 1 to 5 percent slopes. This gently sloping, moderately well drained soil is in the terrace uplands. Areas range from about 30 acres to 400 acres.

Typically, the surface layer is dark brown, medium acid silt loam about 4 inches thick. The subsurface layer is brown, strongly acid silt loam about 3 inches thick. The subsoil is strong brown, mottled, strongly acid silty clay loam in the upper part; yellowish red, mottled, very strongly acid silty clay in the middle part; and light brownish gray and gray, mottled, very strongly acid and strongly acid silty clay and clay in the lower part. The underlying material to a depth of about 65 inches is yellowish red, mottled, medium acid clay.

Included with this soil in mapping are a few small areas of Guyton and Kolin soils. These areas make up about 25 percent of the map unit. Guyton soils are in depressional areas and are loamy throughout. Kolin soils are on slightly higher ridges and are loamy in the upper part of the subsoil.

This Gore soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a very slow rate. Water runs off the surface at a medium rate. This soil has high shrink-swell potential in the subsoil. Adequate water is available to plants in most years.

Most of the acreage of this soil is in woodland. A small acreage is in pasture.

This soil is moderately well suited to woodland. The potential for pine trees is moderately high. Restricted use of equipment and seedling mortality are the main concerns in producing and harvesting timber. Proper site preparation is needed to offset initial plant competition, and spraying can be used to control the subsequent growth of weeds. Maintaining a proper cutting cycle helps to overcome the limitations to use of equipment during wet periods of the year.

This soil is poorly suited to cultivated crops. Low fertility, the hazard of erosion, and potentially toxic levels of aluminum within the rooting zone are the main limitations. The main crops are soybeans and corn. This soil is easy to work, but it is difficult for crop roots to penetrate the subsoil. The use of minimum tillage and the construction of terraces, diversions, and grassed waterways help to control erosion. Crops respond well to additions of lime and fertilizer, which help to overcome low fertility and reduce the high levels of aluminum.

This soil is well suited to pasture. Low fertility is the main limitation. Erosion is a hazard during the establishment of pasture plants. Suitable pasture plants are bahiagrass, common bermudagrass, improved bermudagrass, coastal bermudagrass, ball clover, and crimson clover. Where it is practical, seedbeds should be prepared on the contour or across the slope. Proper grazing practices, weed control, and additions of fertilizer are needed to produce maximum quality forage.

This soil is poorly suited to urban uses. A clayey subsoil, very slow permeability, and high shrink-swell potential are the main limitations. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential. Very slow permeability increases the possibility of failure of septic tank absorption fields. This limitation can be overcome to some extent, however, by increasing the size of the absorption field.

This soil is moderately well suited to recreational development. Very slow permeability is the main limitation. The hazard of erosion is a concern in areas where paths and trails are developed.

This Gore soil is in capability subclass IVe and woodland group 3c.

Gr—Gore silt loam, 5 to 12 percent slopes. This moderately sloping and strongly sloping, moderately well drained soil is on side slopes in the terrace uplands. Areas range from about 15 acres to 200 acres.

The surface layer is dark brown, medium acid silt loam about 4 inches thick. The subsurface layer is pale brown, medium acid very fine sandy loam about 5 inches thick. The subsoil is red, mottled, very strongly acid and strongly acid silty clay in the upper part; light brownish gray, very strongly acid silty clay in the next part; yellowish red, very strongly acid silty clay below that; and yellowish red, medium acid clay in the lower part. The underlying material to a depth of about 80 inches is yellowish red, mottled, medium acid clay.

Included with this soil in mapping are a few small areas of Guyton and Kolin soils. These areas make up about 10 percent of the map unit. Guyton soils are in drainageways and have less clay in the subsoil than Gore soil. Kolin soils are on higher lying ridges and have less clay in the upper part of the subsoil.

This Gore soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a very slow rate. Water runs off the surface at a rapid rate. This soil has high shrink-swell potential in the subsoil. Plants are damaged by lack of water during dry periods in summer and fall of some years.

Most of the acreage of this soil is in woodland. A small acreage is in pasture.

This soil is moderately well suited to woodland. The potential for pine trees is moderately high. Restricted use of equipment and seedling mortality are the main concerns in producing and harvesting timber. Hand planting of nursery stock is often necessary to establish or improve a stand. Because the clayey soil is sticky when wet, planting and harvesting should be done during dry periods.

This soil is generally poorly suited to cultivated crops. The hazard of erosion is usually too severe for this use.

This soil is moderately well suited to pasture. Steep slopes and the severe hazard of erosion are the main limitations. The use of equipment is limited somewhat by steep slopes. Suitable pasture plants are bahiagrass, common bermudagrass, ball clover, and crimson clover. Proper grazing practices, weed control, and additions of fertilizer are needed to produce maximum quality forage.

This soil is poorly suited to urban uses. The clayey subsoil, high shrink-swell potential, and slope are the main limitations. Erosion is a hazard in the steeper areas. Only that part of the site that is used for construction should be disturbed. Revegetating disturbed areas around construction sites as soon as possible helps to control erosion. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential. The limitation of very slow permeability can be overcome to some extent by increasing the size of septic tank absorption fields.

This soil is moderately well suited to recreational development. Slope and very slow permeability are the main limitations. Paths and trails should extend across the slope. Plant cover can be maintained by controlling traffic.

This Gore soil is in capability subclass VIe and woodland group 3c.

Gu—Guyton silt loam. This level, poorly drained soil is on broad flats and in depressional areas in the terrace uplands. Areas range from about 20 acres to 200 acres. Slope is dominantly less than 1 percent.

The surface layer is grayish brown, very strongly acid silt loam about 6 inches thick. The subsurface layer is about 18 inches thick. It is light brownish gray, mottled, strongly acid silt loam in the upper part and light gray, mottled, strongly acid silt loam in the lower part. The subsoil to a depth of about 65 inches is grayish brown, mottled, strongly acid and very strongly acid silty clay loam in the upper and middle parts and light grayish brown, mottled, very strongly acid silt loam in the lower part.

Included with this soil in mapping are a few small areas of Caddo and Cahaba soils. These areas make up about 15 percent of the map unit. Caddo soils are on slightly higher positions than Guyton soil, and they have red mottles in the subsoil. Cahaba soils are also on higher positions. They have more sand throughout and are redder in the subsoil than Guyton soil.

This Guyton soil has low fertility and moderately high levels of exchangeable aluminum within the rooting zone that are potentially toxic to some crops. Water and air move through this soil at a slow rate. Water runs off the surface at a slow rate and stands in low places for short periods. A seasonal high water table fluctuates between a depth of about 1.5 feet and the surface from December through May. The surface layer of this soil remains wet for long periods after heavy rains. Adequate water is available to plants in most years. The shrink-swell potential is low.

Most of the acreage of this soil is in woodland. A small acreage is in pasture and cropland.

This soil is well suited to woodland. The potential for pine and hardwood trees is high. Restricted use of equipment and moderately high seedling mortality because of wetness are the main concerns in producing and harvesting timber. Machine planting is practical only in dry years. Conventional methods of harvesting timber generally can be used, but these methods are limited

and parking areas. The sand is used as a mixture for hot mix, concrete, and mortar sand. A mixture of sand, clay, and gravel, locally called "pitrun," is also used as building material.

Most areas of this map unit are bare of vegetation. Scattered trees and sparse stands of grass grow in a few of the abandoned pits.

Gravel pits are not suited to cropland, woodland, pasture, or to urban uses and recreational uses unless major reclamation is done.

Pits, gravel, is in capability subclass VIIs. It is not assigned to a woodland suitability group.

RK—Rigolette-Kisatchie association, hilly. The somewhat poorly drained Rigolette soil and the well drained Kisatchie soil are in the terrace uplands. The landscape is one of narrow ridgetops and moderately sloping to steep side slopes. It is dissected by many narrow drainageways. A few stones and boulders and outcrops of sandstone and siltstone are at the surface in most areas. Areas, which range from about 80 acres to 500 acres, are about 35 percent Rigolette soil and about 30 percent Kisatchie soil.

The Rigolette soil is on plane and concave side slopes and midslope benches. Slopes range from 5 to 15 percent. The Kisatchie soil is on convex, upper and lower side slopes. Slopes range from 5 to 30 percent.

The number of observations made in these areas was fewer than in other areas because steep slopes, depth to rock, and rock outcrops are major limitations to the use and management of these soils. For this reason, separation of the soils would be of little value to the land user. In addition, some areas are in an abandoned military bombing range site where use and management are severely limited because of the possibility of unexploded bombs. The detail in mapping, however, is adequate for the expected use of these soils.

Typically, the Rigolette soil has a surface layer of grayish brown, strongly acid loamy fine sand about 4 inches thick. The subsurface layer is light brownish gray, mottled, strongly acid loamy fine sand about 8 inches thick. The subsoil is light brownish gray, mottled, very strongly acid fine sandy loam in the upper part; gray, mottled, very strongly acid sandy clay loam in the middle part; and light gray, mottled, very strongly acid silty clay in the lower part. The underlying material to a depth of about 75 inches is light gray and light brownish gray, mottled, very strongly acid silty clay and clay. In places the underlying material has small to large fragments of sandstone or siltstone.

The Rigolette soil has low fertility and high levels of exchangeable aluminum within the rooting zone. Water and air move through the subsoil at a moderate rate and through the underlying material at a very slow rate. The underlying material is extremely hard when dry, and it remains dry most of the time. Water runs off the surface at a medium rate. A water table is perched upon the clayey underlying material from December to April. Effective rooting depth ranges from about 20 to 40 inches. The subsoil has moderate shrink-swell potential. Plants are damaged because of lack of water during dry periods in summer and fall of most years.

Typically, the Kisatchie soil has a surface layer about 8 inches thick. It is very dark gray, very strongly acid very fine sandy loam in the upper part and dark grayish brown, very strongly acid very fine sandy loam in the lower part. The subsoil is grayish brown, very strongly acid clay loam in the upper part and pale brown, very strongly acid silty clay in the lower part. The underlying material to a depth of about 60 inches is olive, extremely acid sandstone.

The Kisatchie soil has low fertility and high levels of exchangeable aluminum within the rooting zone. Water and air move through the soil at a very slow rate. Runoff is rapid and very rapid. Effective rooting depth ranges from about 20 to 40 inches. The soil dries quickly after rains. It has high shrink-swell potential in the subsoil. Plants are damaged because of lack of water during dry periods in summer and fall of most years.

Included with these soils in mapping are many small areas of Briley, Cadeville, Ruston, and Smithdale soils. Cadeville soils are on plane and convex side slopes and are clayey throughout. Briley, Ruston, and Smithdale soils are on narrow ridgetops and upper side slopes and have less clay in the subsoil than Rigolette and Kisatchie soils. In places all of the included soils are underlain by large fragments of sandstone or siltstone at depths ranging from 30 to 50 inches below the surface. Also included are many small areas where sandstone or siltstone crops out at the surface. A few small seep areas that are very wet most of the time are on midslope benches. The included soils make up about 25 percent of the unit.

All of the acreage of these soils is in woodland. It is mainly in pine trees, but some areas are in mixed hardwood and pine stands.

These soils are poorly suited to woodland. They have low potential for pine trees. Moderate seedling mortality and a moderate hazard of erosion are the main concerns in producing and harvesting timber. The use of equipment is moderately limited in the steeper areas because of sandstone and siltstone outcrops and steepness of slopes. Trees are subject to windthrow because of limited rooting depth. Conventional methods of harvesting generally can be used, but wetness limits the use of equipment during the winter and spring in areas of the Rigolette soil. In those areas that are within the abandoned military bombing range site, the use of equipment for site preparation is limited because of the possibility of unexploded bombs. Reestablishment of trees after harvest is possible only by natural regeneration.

These soils are generally poorly suited to improved pasture, and they are not suited to improved pasture in

areas within the old military bombing range site. Low fertility, steep slopes, sandstone or siltstone outcrops, and limited choice of pasture plants are the main limitations. Suitable pasture plants are common bermudagrass and bahiagrass. Use of proper grazing practices, weed control, and additions of fertilizer are needed to produce maximum quality forage.

These soils are poorly suited to cultivated crops. They are limited mainly by steep slopes, sandstone or siltstone outcrops, low fertility, and low to moderate available water capacity. Cultivation is not feasible in areas that are within the military bombing range site because of the possibility of unexploded bombs.

These soils are poorly suited to urban uses. They are not suited to areas that are within the old military bombing range site. Steep slopes, rock outcrops, wetness, very slow permeability, and high shrink-swell potential are the main limitations. Erosion is a hazard in the steeper areas. Only that part of the site used for construction should be disturbed. Structures to divert runoff are needed if buildings and roads are to be constructed. Reestablishment of plants is difficult in areas that have had the surface layer removed and the subsoil exposed, but mulching and fertilizing the cut areas help to establish the plants. Seepage from sanitary facilities would be difficult to control because of the steepness of slopes. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential.

These soils are poorly suited to recreational development. Wetness is a limitation in the Rigolette soil. Slope and very slow permeability are limitations in areas of both Rigolette and Kisatchie soils. Erosion and sedimentation can be controlled and the beauty of the area enhanced if adequate plant cover is maintained. Paths and trails should extend across the slope where possible. Drainage is needed if intensively used areas such as playgrounds are located on the Rigolette soil.

These Rigolette and Kisatchie soils are in capability subclass VIe and woodland suitability group 5d.

Rm—Roxana very fine sandy loam. This level, well drained soil is on natural levees of the Red River and its distributaries. Areas range from about 15 acres to 500 acres. Slope is dominantly less than 1 percent.

Typically, the surface layer is yellowish red, neutral very fine sandy loam about 6 inches thick. The underlying material to a depth of about 65 inches is yellowish red, moderately alkaline very fine sandy loam, loamy very fine sand, and silt loam. In places the surface layer is calcareous.

Included with this soil in mapping are a few small areas of Gallion, Latanier, Moreland, and Norwood soils. These areas make up about 10 percent of most mapped areas. Gallion soils are on slightly lower positions than Roxana soil, and they have a subsoil that is more acid. Latanier and Moreland soils are on lower positions and have a more clayey subsoil. Norwood soils are on slightly lower positions and have more clay in the profile between depths of 10 and 40 inches.

This Roxana soil has high fertility. Water and air move through this soil at a moderate rate. Water runs off the surface at a slow rate. This soil dries quickly after rains. A seasonal high water table fluctuates between depths of about 4 and 6 feet from December to April. Plants are damaged because of lack of water during dry periods in summer and fall of some years. This soil has low shrink-swell potential.

Most of the acreage of this soil is used for cultivated crops. A small acreage is in pasture.

This soil is well suited to cultivated crops. The main crops are soybeans, cotton, corn, wheat, oats, and grain sorghum. This soil has few limitations. It is friable and easy to keep in good tilth and can be worked over a wide range of moisture content. Excessive cultivation can result in the formation of a tillage pan, but this pan can be broken by subsoiling when the soil is dry. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion.

This soil is well suited to pasture. It has few limitations for this use. Suitable pasture plants are improved bermudagrass, common bermudagrass, bahiagrass, ryegrass, tall fescue, and white clover. Use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture and the soil in good condition. Fertility generally is sufficient for sustained production of high quality, nonirrigated pasture.

This soil is well suited to woodland. It has very high potential for hardwood trees. All areas, however, have been cleared for use as cropland and pastureland. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is moderately well suited to urban uses. It has few limitations for use as building sites and roads; however, wetness and moderate permeability are limitations if the soil is used for most sanitary facilities. Wetness and moderate permeability increase the possibility of failure of septic tank absorption fields, but these limitations can be overcome by increasing the length of the absorption lines.

This soil is well suited to recreational facilities, such as playgrounds, paths, picnic areas, and camp areas. It has few limitations for these uses.

This Roxana soil is in capability class I and woodland group 1o.

***Rn—Roxana* very fine sandy loam, occasionally flooded.** This gently undulating, well drained soil is on the natural levee of the Red River. It is between the river channel and the protection levee and is subject to occasional flooding. Areas range from about 15 acres to 350 acres. The landscape is one of low parallel ridges

cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is moderately well suited to pasture. Flooding is the main limitation. The period of grazing and choice of pasture plants are limited because of flooding. A suitable pasture plant is common bermudagrass. Periodic mowing and clipping helps to maintain uniform growth, discourages selective grazing, and reduces clumpy growth. During periods of flooding cattle need to be moved to adjacent protected areas or to pasture at a higher elevation.

This soil is generally not suited to cultivated crops. The hazard of flooding is too severe for this use.

This soil is generally not suited to urban and recreational uses. The hazard of flooding is too severe for these uses.

This Roxana soil is in capability subclass Vw and woodland group 1o.

Rp—Ruston fine sandy loam, 1 to 5 percent slopes. This gently sloping, well drained soil is on narrow ridgetops in the terrace uplands. Areas range from about 10 acres to 350 acres.

Typically, the surface layer is about 4 inches thick. It is brown, strongly acid fine sandy loam. The subsurface layer is light yellowish brown, strongly acid fine sandy loam about 10 inches thick. The subsoil extends to a depth of about 75 inches. It is reddish brown, very strongly acid sandy clay loam in the upper part; yellowish red, very strongly acid fine sandy loam in the middle part; and red, very strongly acid sandy clay loam in the lower part.

Included with this soil in mapping are a few small areas of Briley, Malbis, and Smithdale soils. These areas make up about 10 percent of the map unit. Malbis soils are on the more nearly level parts of ridgetops. They have plinthite nodules in the subsoil. Smithdale soils are on steeper side slopes. They have less clay in the lower part of the subsoil than Ruston soil. Briley soils are mainly on some of the narrow ridgetops. They are sandy to a depth ranging from 20 to 40 inches below the surface.

This Ruston soil has low fertility and moderately high levels of exchangeable aluminum within the rooting zone that are potentially toxic to some crops. Water and air move through this soil at a moderate rate. Runoff is medium, and the hazard of water erosion is moderate. This soil dries quickly after rains. Plants are damaged because of lack of water during dry periods in summer and fall of some years. This soil has low shrink-swell potential.

Most of the acreage of this soil is in woodland. Small acreages are used for pasture and for cropland.

This soil is well suited to woodland. It has high potential for pine trees. This soil has few limitations for use and management. Management that minimizes the risk of erosion is important in harvesting timber. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is well suited to pasture. Low fertility and the hazard of erosion when pasture plants are being established are the main limitations. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ball clover, and crimson clover. Additions of fertilizer and lime are needed for optimum growth of grasses and legumes. Seedbeds should be prepared on the contour or across the slope where it is practical. Rotation grazing helps to maintain the quality of forage.

This soil is moderately well suited to cultivated crops. The main crops are sweet potatoes, watermelons, soybeans, corn, and cotton. Low fertility, slope, and potentially toxic levels of exchangeable aluminum within the rooting zone are the main limitations. This soil is friable and easy to keep in good tilth. It can be worked over a wide range of moisture content. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion. The use of minimum tillage and the construction of terraces and grassed waterways also help to control erosion. Most crops respond well to additions of lime and fertilizer, which help to overcome the low fertility and moderately high levels of exchangeable aluminum.

This soil is moderately well suited to urban uses. Moderate permeability is a limitation if septic tank absorption fields are installed, but this limitation can be overcome by increasing the size of the absorption field. The hazard of erosion is a limitation in areas where buildings are constructed. Revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. Plant cover can be established and maintained by proper fertilizing, seeding, mulching, and shaping of the slopes.

This soil is well suited to recreational uses. It has few limitations. Erosion can be controlled and the beauty of the area enhanced if adequate plant cover is maintained.

This Ruston soil is in capability subclass IIIe and woodland group 2o.

RR—Ruston-Cadeville association, moderately rolling. The well drained Ruston soil and the moderately well drained Cadeville soil are in the terrace uplands and are within an abandoned military bombing range site. The landscape is one of very gently sloping to gently sloping ridgetops and moderately sloping to strongly sloping side slopes. Areas, which range from 100 acres to 640 acres, are about 45 percent Ruston soil and about 40 percent Cadeville soil.

The Ruston soil is on convex ridgetops that are generally less than 300 feet wide. Slopes range from 1 to 5 percent. The Cadeville soil is on short, complex side slopes that are dissected by many short drainageways

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
Ad---------- Armistead	0-14	40-55	1.20-1.35	0.06-0.2	0.18-0.20	6.1-8.4	High----------	0.32	5	2-4
	14-75	14-30	1.35-1.65	0.2-0.6	0.18-0.22	6.1-8.4	Low----------	0.37		
Br---------- Briley	0-30	5-18	1.50-1.65	6.0-20	0.07-0.11	4.5-6.5	Low----------	0.20	5	<1
	30-65	15-35	1.55-1.69	0.6-2.0	0.13-0.17	4.5-6.0	Low----------	0.24		
Ca---------- Caddo	0-21	14-27	1.35-1.70	0.6-2.0	0.18-0.23	4.5-6.0	Low----------	0.49	5	.5-2
	21-80	18-35	1.35-1.70	0.06-0.2	0.20-0.22	4.5-6.0	Low----------	0.37		
Cd---------- Cadeville	0-6	10-22	1.30-1.65	0.6-2.0	0.14-0.22	3.6-6.0	Low----------	0.43	5	.5-1
	6-48	39-60	1.20-1.45	<0.06	0.18-0.20	3.6-5.5	High----------	0.32		
	48-65	30-60	1.20-1.65	<0.2	0.18-0.20	3.6-5.5	High----------	0.32		
Ce---------- Cadeville	0-7	10-22	1.30-1.65	0.6-2.0	0.14-0.22	3.6-6.0	Low----------	0.43	5	.5-1
	7-42	39-60	1.20-1.45	<0.06	0.18-0.20	3.6-5.5	High----------	0.32		
	42-65	30-60	1.20-1.65	<0.2	0.18-0.20	3.6-5.5	High----------	0.32		
Ch---------- Cahaba	0-8	7-17	1.35-1.60	2.0-6.0	0.10-0.14	4.5-6.0	Low----------	0.24	5	.5-2
	8-48	18-35	1.35-1.60	0.6-2.0	0.12-0.15	4.5-6.0	Low----------	0.28		
	48-65	4-20	1.40-1.70	2.0-20	0.05-0.10	4.5-6.0	Low----------	0.24		
Ga---------- Gallion	0-8	14-27	1.35-1.65	0.6-2.0	0.21-0.23	5.6-7.3	Low----------	0.43	5	.5-2
	8-34	14-35	1.35-1.75	0.6-2.0	0.20-0.22	5.6-7.8	Moderate------	0.32		
	34-65	14-35	1.35-1.75	0.6-2.0	0.20-0.23	6.1-8.4	Low----------	0.37		
Gb---------- Gallion	0-6	27-35	1.35-1.65	0.6-2.0	0.20-0.22	5.6-7.3	Moderate------	0.32	5	.5-2
	6-41	14-35	1.35-1.75	0.6-2.0	0.20-0.22	5.6-7.8	Moderate------	0.32		
	41-65	14-35	1.35-1.75	0.6-2.0	0.20-0.23	6.1-8.4	Low----------	0.37		
Gc---------- Gallion	0-9	14-27	1.35-1.65	0.6-2.0	0.21-0.23	5.6-7.3	Low----------	0.43	5	.5-2
	9-39	14-35	1.35-1.75	0.6-2.0	0.20-0.22	5.6-7.8	Moderate------	0.32		
	39-65	14-35	1.35-1.75	0.6-2.0	0.20-0.23	6.1-8.4	Low----------	0.37		
Gn---------- Glenmora	0-9	8-22	1.35-1.65	0.6-2.0	0.20-0.23	4.5-6.0	Low----------	0.49	5	.5-2
	9-30	18-35	1.35-1.65	0.6-2.0	0.18-0.20	4.5-6.0	Low----------	0.43		
	30-69	27-35	1.35-1.70	0.06-0.2	0.18-0.20	4.5-6.0	Moderate------	0.43		
	69-80	35-45	1.35-1.70	0.06-0.2	0.14-0.20	4.5-6.0	High----------	0.37		
Go---------- Gore	0-10	5-15	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.49	5	.5-4
	10-57	40-60	1.30-1.75	<0.06	0.14-0.18	4.5-7.3	High----------	0.32		
	57-65	40-80	1.30-1.75	<0.06	0.14-0.18	4.5-8.4	High----------	0.32		
Gr---------- Gore	0-9	5-15	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.49	5	.5-4
	9-56	40-60	1.30-1.75	<0.06	0.14-0.18	4.5-7.3	High----------	0.32		
	56-80	40-80	1.30-1.75	<0.06	0.14-0.18	4.5-8.4	High----------	0.32		
Gu---------- Guyton	0-24	7-25	1.35-1.65	0.6-2.0	0.20-0.23	3.6-6.0	Low----------	0.43	5	<2
	24-54	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-6.0	Low----------	0.37		
	54-65	20-35	1.35-1.70	0.06-2.0	0.15-0.22	3.6-8.4	Low----------	0.37		
GY*:										
Guyton----------	0-25	7-25	1.35-1.65	0.6-2.0	0.20-0.23	3.6-6.0	Low----------	0.43	5	<2
	25-50	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-6.0	Low----------	0.37		
	50-96	20-35	1.35-1.70	0.06-2.0	0.15-0.22	3.6-8.4	Low----------	0.37		
Cascilla--------	0-8	5-20	1.40-1.50	0.6-2.0	0.18-0.22	4.5-5.5	Low----------	0.43	5	1-3
	8-60	18-30	1.45-1.50	0.6-2.0	0.16-0.20	4.5-5.5	Low----------	0.43		
	60-80	5-25	1.40-1.50	0.6-2.0	0.16-0.20	4.5-5.5	Low----------	0.43		
Ko---------- Kolin	0-6	10-27	1.35-1.65	0.6-2.0	0.18-0.22	5.1-6.5	Low----------	0.49	5	.5-2
	6-28	20-35	1.35-1.65	0.2-0.6	0.18-0.22	4.5-6.0	Moderate------	0.37		
	28-74	40-55	1.20-1.65	<0.06	0.15-0.18	4.5-6.5	High----------	0.32		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
La---------- Latanier	0-6	40-55	1.20-1.70	<0.06	0.18-0.20	6.6-8.4	Very high----	0.32	5	.5-4
	6-34	40-55	1.20-1.70	<0.06	0.18-0.20	6.6-8.4	Very high----	0.32		
	34-65	10-27	1.30-1.65	0.06-2.0	0.18-0.22	6.6-8.4	Low----------	0.37		
Ma---------- Malbis	0-6	10-25	1.35-1.70	0.6-2.0	0.10-0.15	4.5-6.0	Low----------	0.24	5	.5-1
	6-14	18-33	1.40-1.70	0.6-2.0	0.12-0.20	4.5-5.5	Low----------	0.28		
	14-43	20-35	1.40-1.70	0.6-2.0	0.12-0.17	4.5-5.5	Low----------	0.28		
	43-64	20-35	1.40-1.70	0.2-0.6	0.12-0.17	4.5-5.5	Low----------	0.28		
Me---------- Mayhew	0-5	10-40	1.35-1.45	0.06-0.2	0.20-0.22	4.5-6.0	Moderate-----	0.37	5	1-3
	5-35	35-60	1.20-1.55	<0.06	0.18-0.20	4.5-6.0	High----------	0.32		
	35-75	35-75	1.20-1.55	<0.06	0.18-0.20	4.5-6.0	High----------	0.32		
Mf---------- Metcalf	0-4	8-22	1.35-1.65	0.6-2.0	0.12-0.18	3.6-6.0	Low----------	0.49	5	.5-2
	4-37	18-27	1.35-1.65	0.2-0.6	0.15-0.20	3.6-6.0	Low----------	0.37		
	37-75	40-60	1.20-1.55	<0.06	0.15-0.18	3.6-6.0	High----------	0.32		
Mn---------- Moreland	0-11	18-27	1.40-1.65	0.6-2.0	0.21-0.23	6.1-7.8	Low----------	0.43	5	2-4
	11-38	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High----------	0.32		
	38-65	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high----	0.32		
Mo---------- Moreland	0-12	27-39	1.45-1.75	0.06-0.2	0.19-0.21	6.1-7.8	Moderate-----	0.37	5	2-4
	12-44	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High----------	0.32		
	44-65	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high----	0.32		
Mp---------- Moreland	0-10	39-50	1.20-1.50	<0.06	0.18-0.20	6.1-7.8	Very high----	0.32	5	2-4
	10-31	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High----------	0.32		
	31-66	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high----	0.32		
Mt---------- Moreland	0-5	39-50	1.20-1.50	<0.06	0.18-0.20	6.1-7.8	Very high----	0.32	5	2-4
	5-36	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High----------	0.32		
	36-65	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high----	0.32		
Mw---------- Moreland	0-11	39-50	1.20-1.50	<0.06	0.18-0.20	6.1-7.8	Very high----	0.32	5	2-4
	11-40	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High----------	0.32		
	40-65	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high----	0.32		
Nd---------- Norwood	0-8	10-27	1.35-1.65	0.6-2.0	0.17-0.21	7.4-8.4	Low----------	0.43	5	.5-2
	8-20	18-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low----------	0.43		
	20-66	10-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low----------	0.43		
No---------- Norwood	0-8	27-40	1.35-1.65	0.6-2.0	0.18-0.22	7.4-8.4	Moderate-----	0.32	5	.5-2
	8-23	18-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low----------	0.43		
	23-67	10-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low----------	0.43		
Nr---------- Norwood	0-13	10-27	1.35-1.65	0.6-2.0	0.17-0.21	7.4-8.4	Low----------	0.43	5	.5-2
	13-37	18-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low----------	0.43		
	37-75	10-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low----------	0.43		
Pt*. Pits										
RK*:										
Rigolette--------	0-12	3-10	1.35-1.70	6.0-20.0	0.07-0.11	4.5-5.5	Low----------	0.20	4	.5-1
	12-17	18-30	1.35-1.65	0.6-2.0	0.11-0.20	4.5-5.5	Low----------	0.32		
	17-32	20-35	1.35-1.65	0.6-2.0	0.12-0.17	4.5-5.5	Moderate-----	0.32		
	32-75	50-70	1.20-1.60	<0.06	0.08-0.11	3.6-5.5	High----------	0.32		
Kisatchie--------	0-8	10-27	1.35-1.65	0.6-2.0	0.12-0.20	4.5-5.5	Low----------	0.43	3	.5-2
	8-24	35-55	1.20-1.70	<0.06	0.15-0.18	3.6-5.0	High----------	0.32		
	24-50	---	---	---	---	---	----------	----		
Rm---------- Roxana	0-6	5-27	1.35-1.80	0.6-2.0	0.10-0.21	6.1-8.4	Low----------	0.43	5	.5-2
	6-65	10-18	1.35-1.80	0.6-2.0	0.10-0.19	6.6-8.4	Low----------	0.37		
Rn, Ro---------- Roxana	0-5	5-27	1.35-1.80	0.6-2.0	0.10-0.21	6.1-8.4	Low----------	0.43	5	.5-2
	5-65	10-18	1.35-1.80	0.6-2.0	0.10-0.19	6.6-8.4	Low----------	0.37		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
Rp---------- Ruston	0-14	5-20	1.30-1.70	0.6-2.0	0.09-0.16	4.5-6.5	Low----------	0.28	5	.5-2
	14-33	18-35	1.40-1.80	0.6-2.0	0.12-0.17	4.5-6.0	Low----------	0.28		
	33-58	10-20	1.30-1.70	0.6-2.0	0.12-0.15	4.5-6.0	Low----------	0.32		
	58-75	15-38	1.40-1.70	0.6-2.0	0.12-0.17	4.5-6.0	Low----------	0.28		
RR*:										
Ruston----------	0-10	5-20	1.30-1.70	0.6-2.0	0.09-0.16	4.5-6.5	Low----------	0.28	5	.5-2
	10-40	18-35	1.40-1.80	0.6-2.0	0.12-0.17	4.5-6.0	Low----------	0.28		
	40-50	10-20	1.30-1.70	0.6-2.0	0.12-0.15	4.5-6.0	Low----------	0.32		
	50-80	15-38	1.40-1.70	0.6-2.0	0.12-0.17	4.5-6.0	Low----------	0.28		
Cadeville-------	0-7	10-22	1.30-1.65	0.6-2.0	0.14-0.22	3.6-6.0	Low----------	0.43	5	.5-1
	7-24	39-60	1.20-1.45	<0.06	0.18-0.20	3.6-5.5	High----------	0.32		
	24-65	30-60	1.20-1.65	<0.2	0.18-0.20	3.6-5.5	High----------	0.32		
RS*:										
Ruston----------	0-7	5-20	1.30-1.70	0.6-2.0	0.09-0.16	4.5-6.5	Low----------	0.28	5	.5-2
	7-41	18-35	1.40-1.80	0.6-2.0	0.12-0.17	4.5-6.0	Low----------	0.28		
	41-47	10-20	1.30-1.70	0.6-2.0	0.12-0.15	4.5-6.0	Low----------	0.32		
	47-75	15-38	1.40-1.70	0.6-2.0	0.12-0.17	4.5-6.0	Low----------	0.28		
Smithdale-------	0-6	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28	5	.5-2
	6-36	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	36-72	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
Sm---------- Smithdale	0-9	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28	5	.5-2
	9-24	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	24-65	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
[illegible]---------- [illegible]er Variant	0-6	27-39	1.35-1.65	0.06-2.0	0.12-0.17	7.4-8.4	High----------	0.37	5	1-5
	6-28	35-57	1.20-1.65	0.06-2.0	0.12-0.17	7.4-8.4	High----------	0.37		
	28-60	40-60	1.20-1.50	0.06-2.0	0.12-0.17	7.4-8.4	High----------	0.37		
Un---------- Una	0-6	28-45	1.40-1.60	<0.06	0.15-0.20	4.5-5.5	High----------	0.32	5	1-3
	6-80	28-55	1.40-1.60	<0.06	0.15-0.20	4.5-5.5	High----------	0.28		
Uo---------- Urbo Variant	0-4	25-38	1.35-1.65	0.2-0.6	0.16-0.22	4.5-5.5	Moderate------	0.43	5	.5-2
	4-31	27-35	1.35-1.65	0.06-0.2	0.18-0.22	4.5-5.5	Moderate------	0.37		
	31-46	20-35	1.35-1.65	0.06-0.2	0.12-0.20	4.5-5.5	Moderate------	0.32		
	46-70	10-25	1.35-1.65	0.2-0.6	0.11-0.20	4.5-5.5	Low----------	0.32		
Va---------- Vaiden	0-3	25-55	1.20-1.40	0.06-0.2	0.10-0.15	4.5-6.5	High----------	0.32	4	.5-2
	3-21	60-75	1.20-1.40	<0.06	0.10-0.15	4.5-6.0	Very high-----	0.32		
	21-75	40-75	1.20-1.40	<0.06	0.10-0.15	4.5-7.8	Very high-----	0.32		
Yo---------- Yorktown	0-5	40-65	1.15-1.45	<0.06	0.12-0.18	5.6-7.3	High----------	0.32	5	1-5
	5-45	60-80	1.15-1.45	<0.06	0.12-0.18	5.6-7.3	Very high-----	0.32		
	45-65	60-80	1.15-1.45	<0.06	0.12-0.18	7.4-8.4	Very high-----	0.32		

* See description of the map unit for composition and behavior characteristics of the map unit.