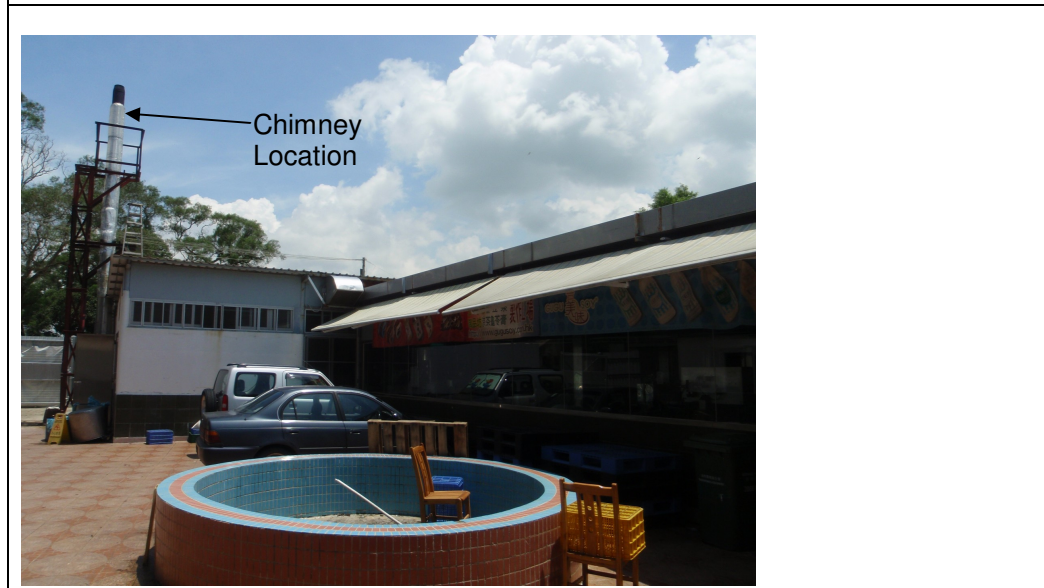
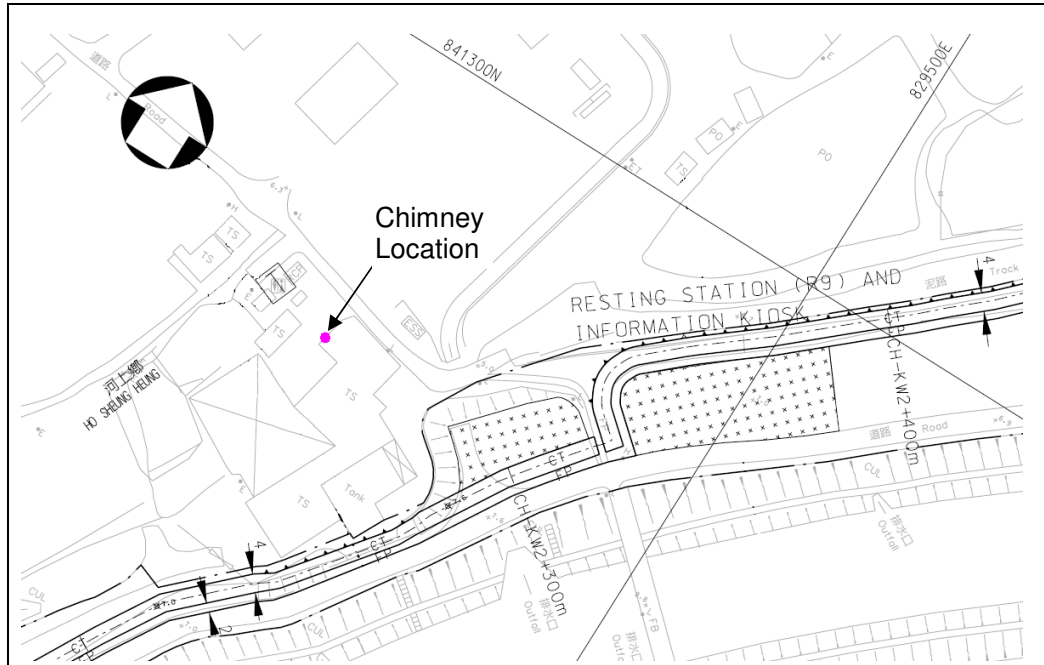


## Appendix 4-1 Chimney Emissions Impact Assessment

### 1. INTRODUCTION

#### 1.1 The Emission Source

1.1.1 One small chimney stack of a local soy products factory located at about 64 m to the southwest of the Information Kiosk has been identified. The relevant location and the chimney photo are shown below:



1.1.2 The operator was interviewed and the following operation details of the chimney were obtained:

- Height of chimney: 8 m above ground

- Fuel type: diesel
- Operating hours: 6 to 8 hours a day, starting from 8 am

1.1.3 Other information of the chimney such as exit gas temperature, efflux velocity, maximum fuel consumption rate, top diameter, were not provided.

## 1.2 Major Pollutants

1.2.1 Sulphur Dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>) are the major pollutants from industrial operations involving the burning of fossil fuel. As the fuel type is diesel, SO<sub>2</sub> and NO<sub>2</sub> were assessed. Respirable suspended particulate (RSP) was also included in this assessment.

## 2. CHIMNEY EMISSIONS IMPACT ASSESSMENT

### 2.1 Background Air Quality Levels

2.1.1 Background levels have made reference to Yuen Long Air Quality Monitoring Station (Air Quality in Hong Kong, 2003 to 2007). The mean value of the 5 years annual average are adopted in the assessment for the purpose of evaluating the cumulative air quality impact, and are as follow:

Annual Average Concentration of Pollutants

Pollutant	Annual Average Concentration (µg/m <sup>3</sup> )					5-year average (used as background)
	Year 2003	Year 2004	Year 2005	Year 2006	Year 2007	
Sulphur Dioxide, SO <sub>2</sub>	18	31	28	28	24	26
Respirable Suspended Particulates, RSP	61	71	62	62	64	64
Nitrogen Dioxide, NO <sub>2</sub>	60	67	58	58	55	60

### 2.2 Assessment Criteria

2.2.1 The assessment criteria are based on Air Quality Objectives (AQOs). The standards for SO<sub>2</sub>, NO<sub>2</sub> and RSP levels adopted in this assessment are given below:

Hong Kong Air Quality Objectives for Pollutants Assessed

Pollutant	Concentration (µg/m <sup>3</sup> ) <sup>(1)</sup> Averaging Period	
	1 Hour <sup>(2)</sup>	24 Hours <sup>(3)</sup>
Sulphur Dioxide, SO <sub>2</sub>	800	350
Respirable Suspended Particulates, RSP <sup>(4)</sup>	-	180
Nitrogen Dioxide, NO <sub>2</sub>	300	150

Notes:

- (1) Measured at 298 K and 101.325 kPa (one atmosphere)
- (2) Not to be exceeded more than 3 times per year
- (3) Not to be exceeded more than once per year
- (4) Respirable suspended particulates means suspended particles in air with a nominal aerodynamic diameter of 10 µm or less

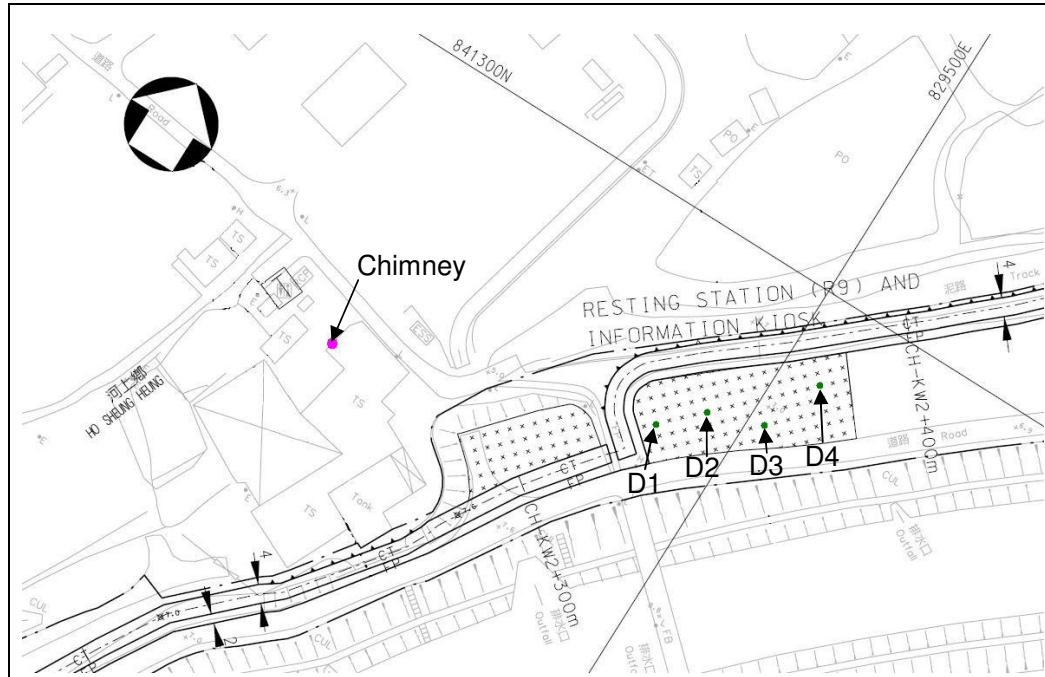
### 2.3 Air Sensitive Receivers

2.3.1 The Information Kiosk has been selected as air sensitive receiver (ASR) for this

assessment as it is the operational phase ASR closest to the chimney in concern. Concentrations at selected locations within the Information Kiosk were assessed at 1.5 m above the ground level which is the breathing level. The selected assessment points are described below:

- D1 – shelter / pavilion area within the Information Kiosk
- D2 – open space / sitting out area within the Information Kiosk
- D3 – information board area
- D4 – mobile first aid station

2.3.2 The location of the assessment points are shown in the following figure.



## 2.4 Meteorological Data

2.4.1 Meteorological data of Ta Kwu Ling Weather Station in 2006 obtained from the Hong Kong Observatory was used for the model run. Parameters include wind speed, wind direction, Pasquill stability class, ambient air temperature and mixing heights.

## 2.5 Modelling Data

2.5.1 Due to the lack of details of the chimney, reference has been made to previous EIA Studies for the model parameters. The following approved Reports were referenced to:

- EIA-152/2008 Tsuen Wan Bypass, Widening of Tsuen Wan Road between Tsuen Tsing Interchange and Kwai Tsing Interchange, and Associated Junction Improvement Works
- EIA-068/2001 Planning and Engineering Feasibility Study for Sham Tseng Development
- EIA-073/2001 Yau Tong Bay Development - Engineering Feasibility Study for the Comprehensive Development at Yau Tong Bay

2.5.2 SO<sub>2</sub>, NO<sub>2</sub> and RSP emission rates were estimated based on chimney emission inventory of similar size chimney from previous approved EIA study. With reference

to Appendix 4-P of the Tsuen Wan Bypass, Widening of Tsuen Wan Road between Tsuen Tsing Interchange and Kwai Tsing Interchange EIA study (EIA-152/2008), emission rates of a chimney (Chimney ID TW-5\*) with a stack diameter same as the chimney in concern (i.e., 0.20 m) have been adopted under a conservative approach. The emission data of Chimney ID TW-5\* was estimated under a conservative approach. The estimated chimney emission rates adopted in this study are as below:

- Emission rate of SO<sub>2</sub> = 1.05 g/s
- Emission rate of RSP = 0.0296 g/s
- Emission rate of NO<sub>x</sub> = 0.2958 g/s
- As a worst case, it is assumed that all NO<sub>x</sub> emissions are NO<sub>2</sub>.
- Thus, emission rate of NO<sub>2</sub> = 0.2958 g/s
- General load factors of 41% during the daytime and 23% during the nighttime were adopted.

2.5.3 According to the Air Pollution Control (Fuel Restriction) (Amendment) Regulations under the Air Pollution Control Ordinance, sulphur content of liquid fuel is not allowed to exceed 0.005% w/w. Thus, the emission factor of SO<sub>2</sub> adopted is very conservative.

2.5.4 Exit gas temperature and velocity were assumed with reference to the EPD's Guidelines on Estimating Height Restriction and Position of Fresh Air Intake Using Gaussian Plume Models:

- Exit gas temperature = 373 K
- Exit gas velocity = 6 m/s

## 2.6 Modelling Results

2.6.1 The chimney emissions were modelled using the software "Industrial Source Complex Short Term Version 3 (ISCST3)" developed by Trinity Consultants Incorporated. This model is based on the principle of Gaussian dispersion.

2.6.2 Under a conservative approach, the predicted highest 1-hour and 24-hour average SO<sub>2</sub>, NO<sub>2</sub> and RSP levels with background concentration included are summarised below:

Predicted Highest Hourly and Daily SO<sub>2</sub>, NO<sub>2</sub> and RSP Levels at Information Kiosk

Pollutant	Concentration (µg/m <sup>3</sup> ) Averaging Period							
	1 Hour				24 Hours			
	D1	D2	D3	D4	D1	D2	D3	D4
SO <sub>2</sub>	454	444	416	385	138	123	116	107
RSP	76	76	75	74	67	67	67	66
NO <sub>2</sub>	181	178	170	161	92	87	85	83

Notes:

- D1 – shelter / pavilion area within the Information Kiosk
- D2 – open space / sitting out area within the Information Kiosk
- D3 – information board area
- D4 – mobile first aid station

2.6.3 The above results show that under a conservative approach the predicted highest 1-hour and 24-hour average SO<sub>2</sub>, NO<sub>2</sub> and RSP levels are within the AQOs. The ISCST3 model output files for the chimney emissions modelling are provided in the following pages.

```

ISCST3 - (DATED 02035)
ISC3MSPx VERSION 4.4.3
(C) COPYRIGHT 1991-2006, Trinity Consultants

Run Began on 12/24/2008 at 9:14:10

** BREEZE ISC GIS Pro v5.2.1 - D:\4082\test.dat
** Trinity Consultants

CO STARTING
CO TITLEONE Construction of Cycle Tracks and the Associated Supporting Faciliti
CO TITLETWO ISCST Model for Chimney at Gugusoy
CO MODELOPT CONC RURAL GRDRIS
CO AVERTIME 1 24 ANNUAL
CO POLLUTID NO2
CO TERRHGT ELEV
CO FLAGPOLE 1.5
CO RUNORNOT RUN
CO FINISHED

SO STARTING
SO ELEVUNIT METERS
SO LOCATION SRC1 POINT 829417.0 841235.0 6.3
** SRCDESCR Stack at Gugusoy
SO SRCPARAM SRC1 2.958000E-01 8 373 6 0.2
SO EMISFACT SRC1 HROFDY 0.23 0.23 0.23 0.23 0.23 0.41 0.41 0.41 0.41 0.41
SO EMISFACT SRC1 HROFDY 0.41 0.41 0.41 0.41 0.41 0.41 0.41 0.41 0.23
SO EMISFACT SRC1 HROFDY 0.23 0.23 0.23 0.23 0.23 0.23 0.23
SO EMISUNIT 1.0E+06 GRAMS/SEC MICROGRAMS/M**3
SO SRCGROUP ALL
SO FINISHED

RE STARTING
RE ELEVUNIT METERS
RE DISCCART 829484.0 841257.0 7 1.5
** RCPDESCR shelter / pavilion
RE DISCCART 829492.0 841265.0 7 1.5
** RCPDESCR Open space / sitting out area
RE DISCCART 829503.0 841269.0 7 1.5
** RCPDESCR Information Board
RE DISCCART 829509.0 841282.0 7 1.5
** RCPDESCR Mobile First Aid Station
RE FINISHED

ME STARTING
ME INPUTFIL D:\4082\TKL2006.ASC
ME ANEMHGHT 28.3 METERS
ME SURFDATA 00000 2006
ME UAIRDATA 11111 2006
ME STARTEND 2006 01 01 1 2006 12 31 24
ME FINISHED

OU STARTING
OU RECTABLE 1 FIRST
OU RECTABLE ALLAVE FIRST
OU MAXTABLE ALLAVE 10
OU FINISHED

** PROJECTN 0 104 7 -177 0 0.9996 500000 0
** OUTFILE D:\4082\test.lst
** RAWFILE D:\4082\test.RAW
** RAWFMT 2
** AMPDATUM 0
** HILLBOUN 0 0 0 0

** POLLUTNT IDN 01 SO2 X
** POLLUTNT NAM 01 Sulphur Dioxide
** POLLUTNT IDN 02 PM X
** POLLUTNT NAM 02 Particulate Matters
** POLLUTNT IDN 03 NO2 X
** POLLUTNT NAM 03 Nitrogen Dioxide
** POLLUTNT EMS SRC1 1.050000E+00 2.960000E-02 2.958000E-01

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

1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/24/08
*** ISCST Model for Chimney at Gugusoy *** 09:14:10
**MODELOPTs: CONC RURAL ELEV FLGPOL GRDRIS PAGE 1

*** MODEL SETUP OPTIONS SUMMARY ***
-----
**Intermediate Terrain Processing is Selected
**Model Is Setup For Calculation of Average CONCentration Values.
-- SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION. DDPLETE = F
**Model Uses NO WET DEPLETION. WDPLETE = F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations
**Model Uses RURAL Dispersion.
**Model Uses User-Specified Options:
1. Gradual Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.
**Model Accepts Receptors on ELEV Terrain.
**Model Accepts FLAGPOLE Receptor Heights.
**Model Calculates 2 Short Term Average(s) of: 1-HR 24-HR

```



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

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\* 12/24/08  
 \*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 09:14:10  
 \*\*MODELOPTS: RURAL ELEV FLGPOL GRDRIS PAGE 7  
 CONC

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

FILE: D:\4082\TKL2006.ASC  
 FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)  
 SURFACE STATION NO.: 0 UPPER AIR STATION NO.: 11111  
 NAME: UNKNOWN NAME: UNKNOWN  
 YEAR: 2006 YEAR: 2006

YR	MN	DAY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M)	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
06	01	01	01	300.0	2.10	290.6	6	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	02	340.0	1.50	290.8	6	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	03	280.0	0.70	290.7	6	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	04	280.0	0.40	290.6	6	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	05	280.0	1.00	290.4	6	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	06	280.0	1.40	290.2	6	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	07	290.0	1.50	290.2	6	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	08	290.0	1.30	290.2	6	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	09	300.0	2.60	290.9	4	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	10	300.0	2.30	292.1	3	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	11	200.0	1.10	293.6	2	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	12	100.0	1.10	294.9	1	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	13	100.0	1.40	296.5	1	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	14	100.0	0.90	298.7	2	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	15	280.0	1.70	297.6	2	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	16	300.0	2.60	296.5	2	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	17	300.0	0.70	295.3	4	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	18	300.0	1.90	293.1	6	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	19	300.0	2.30	291.5	6	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	20	300.0	0.80	290.8	6	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	21	320.0	2.20	290.4	5	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	22	330.0	2.10	290.1	5	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	23	320.0	1.80	290.1	6	950.7	950.7	0.0000	0.0	0.0000	0 0.00
06	01	01	24	330.0	0.90	289.7	6	950.7	950.7	0.0000	0.0	0.0000	0 0.00

\*\*\* 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.

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\* 12/24/08  
 \*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 09:14:10  
 \*\*MODELOPTS: RURAL ELEV FLGPOL GRDRIS PAGE 8  
 CONC

\*\*\* EMISSION RATE DATA FOR \*\*\*  
 NO2  
 Nitrogen Dioxide

* SOURCE ID	EMISSION RATE	* SOURCE ID	EMISSION RATE	* SOURCE ID	EMISSION RATE	* SOURCE ID	EMISSION RATE
* SRC1	0.2958000E+00	*		*		*	

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\* 12/24/08  
 \*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 09:14:10  
 \*\*MODELOPTS: RURAL ELEV FLGPOL GRDRIS PAGE 9  
 CONC

\*\*\* THE ANNUAL ( 1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
 INCLUDING SOURCE(S): SRC1 ,

\*\*\* DISCRETE CARTESIAN RECEPTOR POINTS \*\*\*

** CONC OF NO2		IN MICROGRAMS/M**3		**	
X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
829484.00	841257.00	1.69358	829492.00	841265.00	1.70170
829503.00	841269.00	1.56246	829509.00	841282.00	1.58048

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\* 12/24/08  
 \*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 09:14:10  
 \*\*MODELOPTS: RURAL ELEV FLGPOL GRDRIS PAGE 9  
 CONC

\*\*\* THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
 INCLUDING SOURCE(S): SRC1 ,

\*\*\* DISCRETE CARTESIAN RECEPTOR POINTS \*\*\*

** CONC OF NO2		IN MICROGRAMS/M**3		**	
X-COORD (M)	Y-COORD (M)	CONC (YYMDDHH)	X-COORD (M)	Y-COORD (M)	CONC (YYMDDHH)
829484.00	841257.00	120.59790 (06062509)	829492.00	841265.00	117.69342 (06062509)

829503.00 841269.00 109.99660 (06062509) 829509.00 841282.00 101.03226 (06080815)  
1 \*\*\* ISCST3 - VERSION 02035 \*\*\* \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\* 12/24/08  
\*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 09:14:10  
PAGE 10

\*\*MODELOPTS:  
CONC

RURAL ELEV FLGPOL GRDRIS

\*\*\* THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
INCLUDING SOURCE(S): SRC1

\*\*\* DISCRETE CARTESIAN RECEPTOR POINTS \*\*\*

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3 \*\*

X-COORD (M)	Y-COORD (M)	CONC	(YMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YMMDDHH)
829484.00	841257.00	31.58146c	(06083124)	829492.00	841265.00	27.24837c	(06083124)
829503.00	841269.00	25.27343c	(06083124)	829509.00	841282.00	22.70435	(06071524)

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\* 12/24/08  
\*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 09:14:10  
PAGE 11

\*\*MODELOPTS:  
CONC

RURAL ELEV FLGPOL GRDRIS

\*\*\* THE MAXIMUM 10 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
INCLUDING SOURCE(S): SRC1

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3 \*\*

RANK	CONC	(YMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	120.59790	(06062509)	AT	( 829484.00, 841257.00)	DC	6.	116.83125	(06101410)	AT	( 829492.00, 841265.00)	DC
2.	119.22198	(06061512)	AT	( 829484.00, 841257.00)	DC	7.	116.62239	(06061512)	AT	( 829492.00, 841265.00)	DC
3.	118.80826	(06101410)	AT	( 829484.00, 841257.00)	DC	8.	116.61179	(06052311)	AT	( 829492.00, 841265.00)	DC
4.	118.52853	(06052311)	AT	( 829484.00, 841257.00)	DC	9.	116.40796	(06061911)	AT	( 829484.00, 841257.00)	DC
5.	117.69342	(06062509)	AT	( 829492.00, 841265.00)	DC	10.	116.17319	(06043016)	AT	( 829484.00, 841257.00)	DC

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

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\* 12/24/08  
\*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 09:14:10  
PAGE 12

\*\*MODELOPTS:  
CONC

RURAL ELEV FLGPOL GRDRIS

\*\*\* THE MAXIMUM 10 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
INCLUDING SOURCE(S): SRC1

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3 \*\*

RANK	CONC	(YMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	31.58146c	(06083124)	AT	( 829484.00, 841257.00)	DC	6.	21.52903c	(06090624)	AT	( 829484.00, 841257.00)	DC
2.	27.24837c	(06083124)	AT	( 829492.00, 841265.00)	DC	7.	21.15851c	(06090124)	AT	( 829492.00, 841265.00)	DC
3.	26.42203c	(06090124)	AT	( 829484.00, 841257.00)	DC	8.	20.52612c	(06090624)	AT	( 829492.00, 841265.00)	DC
4.	25.27343c	(06083124)	AT	( 829503.00, 841269.00)	DC	9.	18.81963c	(06090124)	AT	( 829503.00, 841269.00)	DC
5.	22.70435	(06071524)	AT	( 829509.00, 841282.00)	DC	10.	18.68867c	(06081924)	AT	( 829484.00, 841257.00)	DC

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

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\* 12/24/08  
\*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 09:14:10  
PAGE 13

\*\*MODELOPTS:  
CONC

RURAL ELEV FLGPOL GRDRIS

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL ( 1 YRS) RESULTS \*\*\*

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 1.70170 AT ( 829492.00, 841265.00, 7.00, 1.50)	DC	NA	
	2ND HIGHEST VALUE IS 1.69358 AT ( 829484.00, 841257.00, 7.00, 1.50)	DC	NA	
	3RD HIGHEST VALUE IS 1.58048 AT ( 829509.00, 841282.00, 7.00, 1.50)	DC	NA	
	4TH HIGHEST VALUE IS 1.56246 AT ( 829503.00, 841269.00, 7.00, 1.50)	DC	NA	
	5TH HIGHEST VALUE IS 0.00000 AT ( 0.00, 0.00, 0.00, 0.00)			
	6TH HIGHEST VALUE IS 0.00000 AT ( 0.00, 0.00, 0.00, 0.00)			
	7TH HIGHEST VALUE IS 0.00000 AT ( 0.00, 0.00, 0.00, 0.00)			
	8TH HIGHEST VALUE IS 0.00000 AT ( 0.00, 0.00, 0.00, 0.00)			
	9TH HIGHEST VALUE IS 0.00000 AT ( 0.00, 0.00, 0.00, 0.00)			
	10TH HIGHEST VALUE IS 0.00000 AT ( 0.00, 0.00, 0.00, 0.00)			

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

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\* 12/24/08  
\*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 09:14:10  
PAGE 14

\*\*MODELOPTS:  
CONC

RURAL ELEV FLGPOL GRDRIS

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	DATE (YMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS 120.59790	ON 06062509:	AT ( 829484.00, 841257.00, 7.00, 1.50)	DC	NA

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

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\* 12/24/08



\*\*MODELOPTS: \*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 09:14:10  
CONC RURAL ELEV FLGPOL GRDRIS PAGE 15

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL HIGH 1ST HIGH VALUE IS	31.58146c	ON 06083124: AT (	829484.00, 841257.00, 7.00, 1.50)	DC	NA

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

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* \*\*\* Construction of Cycle Tracks and the Associated Supporting Faciliti \*\*\* 12/24/08  
\*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 09:14:10  
\*\*MODELOPTS: \*\*\* PAGE 16  
CONC RURAL ELEV FLGPOL GRDRIS

\*\*\* Message Summary : ISCST3 Model Execution \*\*\*

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

A Total of 0 Fatal Error Message(s)  
A Total of 0 Warning Message(s)  
A Total of 315 Informational Message(s)  
A Total of 315 Calm Hours Identified

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

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

\*\*\*\*\*  
\*\*\* ISCST3 Finishes Successfully \*\*\*  
\*\*\*\*\*

ISCST3 - (DATED 02035)

ISC3MSPx VERSION 4.4.3  
(C) COPYRIGHT 1991-2006, Trinity Consultants

Run Began on 12/23/2008 at 18:40:23

\*\* BREEZE ISC GIS Pro v5.2.1 - D:\4082\test.dat  
\*\* Trinity Consultants

CO STARTING  
CO TITLEONE Construction of Cycle Tracks and the Associated Supporting Faciliti  
CO TITLETWO ISCST Model for Chimney at Gugusoy  
CO MODELOPT CONC RURAL GRDRIS  
CO AVERTIME 1 24 ANNUAL  
CO POLLUTID PM  
CO TERRHGTS ELEV  
CO FLAGPOLE 1.5  
CO RUNORNOT RUN  
CO FINISHED

SO STARTING  
SO ELEVUNIT METERS  
SO LOCATION SRC1 POINT 829417.0 841235.0 6.3  
\*\* SRCDESCR Stack at Gugusoy  
SO SRCPARAM SRC1 2.96000E-02 8 373 6 0.2  
SO EMISFACT SRC1 HROFDY 0.23 0.23 0.23 0.23 0.23 0.41 0.41 0.41 0.41  
SO EMISFACT SRC1 HROFDY 0.41 0.41 0.41 0.41 0.41 0.41 0.41 0.41 0.23  
SO EMISFACT SRC1 HROFDY 0.23 0.23 0.23 0.23 0.23 0.23 0.23  
SO EMISUNIT 1.0E+06 GRAMS/SEC MICROGRAMS/M\*\*3  
SO SRCGROUP ALL  
SO FINISHED

RE STARTING  
RE ELEVUNIT METERS  
RE DISCCART 829484.0 841257.0 7 1.5  
\*\* RCPDESCR shelter / pavilion  
RE DISCCART 829492.0 841265.0 7 1.5  
\*\* RCPDESCR Open space / sitting out area  
RE DISCCART 829503.0 841269.0 7 1.5  
\*\* RCPDESCR Information Board  
RE DISCCART 829509.0 841282.0 7 1.5  
\*\* RCPDESCR Mobile First Aid Station  
RE FINISHED

ME STARTING  
ME INPUTFIL D:\4082\TKL2006.ASC  
ME ANEMHGHT 28.3 METERS  
ME SURFDATA 0000 2006  
ME UAIRDATA 1111 2006  
ME STARTEND 2006 01 01 1 2006 12 31 24  
ME FINISHED

OU STARTING  
OU RECTABLE 1 FIRST  
OU RECTABLE ALLAVE FIRST  
OU MAXTABLE ALLAVE 10  
OU FINISHED

\*\* PROJECTN 0 104 7 -177 0 0.9996 500000 0  
\*\* OUTFILE D:\4082\test.lst  
\*\* RAWFILE D:\4082\test.RAW  
\*\* RAWFMT 2  
\*\* AMPDATUM 0  
\*\* HILLBOUN 0 0 0 0

```
** POLLUTNT IDN 01 SO2 X
** POLLUTNT NAM 01 Sulphur Dioxide
** POLLUTNT IDN 02 PM X
** POLLUTNT NAM 02 Particulate Matters
** POLLUTNT IDN 03 NO2 X
** POLLUTNT NAM 03 Nitrogen Dioxide
** POLLUTNT EMS SRC1 1.000000E+00 2.960000E-02 2.958000E-01
```

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

```
1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/23/08
*** ISCST Model for Chimney at Gugusoy *** 18:40:23
**MODELOPTs: PAGE 1
CONC RURAL ELEV FLGPOL GRDRIS
```

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

--- Intermediate Terrain Processing is Selected

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

-- SCAVENGING/DEPOSITION LOGIC --

```
**Model Uses NO DRY DEPLETION. DDPLETE = F
**Model Uses NO WET DEPLETION. WDPLETE = F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations
```

\*\*Model Uses RURAL Dispersion.

```
**Model Uses User-Specified Options:
1. Gradual Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.
```

\*\*Model Accepts Receptors on ELEV Terrain.

\*\*Model Accepts FLAGPOLE Receptor Heights.

\*\*Model Calculates 2 Short Term Average(s) of: 1-HR 24-HR  
and Calculates ANNUAL Averages

\*\*This Run Includes: 1 Source(s); 1 Source Group(s); and 4 Receptor(s)

\*\*The Model Assumes A Pollutant Type of: PM

\*\*Model Set To Continue RUNNING After the Setup Testing.

```
**Output Options Selected:
Model Outputs Tables of ANNUAL Averages by Receptor
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE 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) = 28.30 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3
```

\*\*Approximate Storage Requirements of Model = 1.2 MB of RAM.

\*\*Input Runstream File: D:\4082\TEST\_PM.DAT

\*\*Output Print File: D:\4082\TEST\_PM.LST

```
1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/23/08
*** ISCST Model for Chimney at Gugusoy *** 18:40:23
**MODELOPTs: PAGE 2
CONC RURAL ELEV FLGPOL GRDRIS
```

\*\*\* POINT SOURCE DATA \*\*\*

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (USER UNITS)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
SRC1	0	0.29600E-01	829417.0	841235.0	6.3	8.00	373.00	6.00	0.20	NO	HROFDY

```
1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/23/08
*** ISCST Model for Chimney at Gugusoy *** 18:40:23
**MODELOPTs: PAGE 3
CONC RURAL ELEV FLGPOL GRDRIS
```

\*\*\* SOURCE IDs DEFINING SOURCE GROUPS \*\*\*

GROUP ID SOURCE IDs

```
ALL SRC1
1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/23/08
*** ISCST Model for Chimney at Gugusoy *** 18:40:23
**MODELOPTs: PAGE 4
CONC RURAL ELEV FLGPOL GRDRIS
```

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

GROUP ID	SCALAR	GROUP ID	SCALAR	GROUP ID	SCALAR	GROUP ID	SCALAR	GROUP ID	SCALAR	GROUP ID	SCALAR
----------	--------	----------	--------	----------	--------	----------	--------	----------	--------	----------	--------

SOURCE ID = SRC1 ; SOURCE TYPE = POINT :



\*\*\* 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.

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\*  
\*\*\* ISCST Model for Chimney at Gugusoy \*\*\*

\*\*\* EMISSION RATE DATA FOR \*\*\*  
PM  
Particulate Matters

SOURCE ID	EMISSION RATE	SOURCE ID	EMISSION RATE	SOURCE ID	EMISSION RATE	SOURCE ID	EMISSION RATE
SRC1	0.2960000E-01						

12/23/08  
18:40:23  
PAGE 8

\*\*\* THE ANNUAL ( 1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
INCLUDING SOURCE(S): SRC1 ,

\*\*\* DISCRETE CARTESIAN RECEPTOR POINTS \*\*\*

** CONC OF PM		IN MICROGRAMS/M**3		**		
X-COORD (M)	Y-COORD (M)	CONC		X-COORD (M)	Y-COORD (M)	CONC
829484.00	841257.00	0.16947		829492.00	841265.00	0.17029
829503.00	841269.00	0.15635		829509.00	841282.00	0.15815

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\*  
\*\*\* ISCST Model for Chimney at Gugusoy \*\*\*

12/23/08  
18:40:23  
PAGE 9

\*\*\* THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
INCLUDING SOURCE(S): SRC1 ,

\*\*\* DISCRETE CARTESIAN RECEPTOR POINTS \*\*\*

** CONC OF PM		IN MICROGRAMS/M**3		**			
X-COORD (M)	Y-COORD (M)	CONC	(YYMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMDDHH)
829484.00	841257.00	12.06794	(06062509)	829492.00	841265.00	11.77730	(06062509)
829503.00	841269.00	11.00710	(06062509)	829509.00	841282.00	10.11006	(06080815)

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\*  
\*\*\* ISCST Model for Chimney at Gugusoy \*\*\*

12/23/08  
18:40:23  
PAGE 10

\*\*\* THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
INCLUDING SOURCE(S): SRC1 ,

\*\*\* DISCRETE CARTESIAN RECEPTOR POINTS \*\*\*

** CONC OF PM		IN MICROGRAMS/M**3		**			
X-COORD (M)	Y-COORD (M)	CONC	(YYMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMDDHH)
829484.00	841257.00	3.16028c	(06083124)	829492.00	841265.00	2.72668c	(06083124)
829503.00	841269.00	2.52905c	(06083124)	829509.00	841282.00	2.27197	(06071524)

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\*  
\*\*\* ISCST Model for Chimney at Gugusoy \*\*\*

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PAGE 11

\*\*\* THE MAXIMUM 10 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
INCLUDING SOURCE(S): SRC1 ,

\*\*\* DISCRETE CARTESIAN RECEPTOR POINTS \*\*\*

RANK	CONC	(YYMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	12.06794	(06062509)	AT	( 829484.00, 841257.00)	DC	6.	11.69102	(06101410)	AT	( 829492.00, 841265.00)	DC
2.	11.93026	(06061512)	AT	( 829484.00, 841257.00)	DC	7.	11.67012	(06061512)	AT	( 829492.00, 841265.00)	DC
3.	11.88886	(06101410)	AT	( 829484.00, 841257.00)	DC	8.	11.66906	(06052311)	AT	( 829492.00, 841265.00)	DC
4.	11.86087	(06052311)	AT	( 829484.00, 841257.00)	DC	9.	11.64867	(06061911)	AT	( 829484.00, 841257.00)	DC
5.	11.77730	(06062509)	AT	( 829492.00, 841265.00)	DC	10.	11.62517	(06043016)	AT	( 829484.00, 841257.00)	DC

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

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\*  
\*\*\* ISCST Model for Chimney at Gugusoy \*\*\*

12/23/08  
18:40:23  
PAGE 12

\*\*\* THE MAXIMUM 10 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
INCLUDING SOURCE(S): SRC1 ,

\*\*\* DISCRETE CARTESIAN RECEPTOR POINTS \*\*\*

RANK	CONC	(YYMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	3.16028c	(06083124)	AT	( 829484.00, 841257.00)	DC	6.	2.15436c	(06090624)	AT	( 829484.00, 841257.00)	DC
2.	2.72668c	(06083124)	AT	( 829492.00, 841265.00)	DC	7.	2.11728c	(06090124)	AT	( 829492.00, 841265.00)	DC
3.	2.64399c	(06090124)	AT	( 829484.00, 841257.00)	DC	8.	2.05400c	(06090624)	AT	( 829492.00, 841265.00)	DC
4.	2.52905c	(06083124)	AT	( 829503.00, 841269.00)	DC	9.	1.88324c	(06090124)	AT	( 829503.00, 841269.00)	DC
5.	2.27197	(06071524)	AT	( 829509.00, 841282.00)	DC	10.	1.87013c	(06081924)	AT	( 829484.00, 841257.00)	DC

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

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* \*\*\* Construction of Cycle Tracks and the Associated Supporting Facilities \*\*\*  
\*\*\* ISCST Model for Chimney at Gugusoy \*\*\*

12/23/08  
18:40:23

\*\*MODELOPTS: RURAL ELEV FLGPOL GRDRIS PAGE 13

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL ( 1 YRS) RESULTS \*\*\*

\*\* CONC OF PM IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR	(XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 0.17029 AT (	829492.00,	841265.00,	7.00,	1.50) DC NA
	2ND HIGHEST VALUE IS 0.16947 AT (	829484.00,	841257.00,	7.00,	1.50) DC NA
	3RD HIGHEST VALUE IS 0.15815 AT (	829509.00,	841282.00,	7.00,	1.50) DC NA
	4TH HIGHEST VALUE IS 0.15635 AT (	829503.00,	841269.00,	7.00,	1.50) DC NA
	5TH HIGHEST VALUE IS 0.00000 AT (	0.00,	0.00,	0.00,	0.00)
	6TH HIGHEST VALUE IS 0.00000 AT (	0.00,	0.00,	0.00,	0.00)
	7TH HIGHEST VALUE IS 0.00000 AT (	0.00,	0.00,	0.00,	0.00)
	8TH HIGHEST VALUE IS 0.00000 AT (	0.00,	0.00,	0.00,	0.00)
	9TH HIGHEST VALUE IS 0.00000 AT (	0.00,	0.00,	0.00,	0.00)
	10TH HIGHEST VALUE IS 0.00000 AT (	0.00,	0.00,	0.00,	0.00)

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

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* Construction of Cycle Tracks and the Associated Supporting Faciliti \*\*\* 12/23/08  
 \*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 18:40:23  
 \*\*MODELOPTS: RURAL ELEV FLGPOL GRDRIS PAGE 14

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

\*\* CONC OF PM IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS 12.06794	ON 06062509:	AT ( 829484.00,	841257.00,	7.00,	1.50) DC NA

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

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* Construction of Cycle Tracks and the Associated Supporting Faciliti \*\*\* 12/23/08  
 \*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 18:40:23  
 \*\*MODELOPTS: RURAL ELEV FLGPOL GRDRIS PAGE 15

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF PM IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS 3.16028c	ON 06083124:	AT ( 829484.00,	841257.00,	7.00,	1.50) DC NA

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

1 \*\*\* ISCST3 - VERSION 02035 \*\*\* Construction of Cycle Tracks and the Associated Supporting Faciliti \*\*\* 12/23/08  
 \*\*\* ISCST Model for Chimney at Gugusoy \*\*\* 18:40:23  
 \*\*MODELOPTS: RURAL ELEV FLGPOL GRDRIS PAGE 16

\*\*\* Message Summary : ISCST3 Model Execution \*\*\*

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

A Total of 0 Fatal Error Message(s)  
 A Total of 0 Warning Message(s)  
 A Total of 315 Informational Message(s)  
 A Total of 315 Calm Hours Identified

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

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

\*\*\*\*\*  
 \*\*\* ISCST3 Finishes Successfully \*\*\*  
 \*\*\*\*\*

ISCST3 - (DATED 02035)  
 ISC3MSPx VERSION 4.4.3  
 (C) COPYRIGHT 1991-2006, Trinity Consultants

Run Began on 12/23/2008 at 18:40:23

\*\* BREEZE ISC GIS Pro v5.2.1 - D:\4082\test.dat  
 \*\* Trinity Consultants

CO STARTING  
 CO TITLEONE Construction of Cycle Tracks and the Associated Supporting Faciliti  
 CO TITLETWO ISCST Model for Chimney at Gugusoy

```

CO MODELOPT CONC RURAL GRDRIS
CO AVERTIME 1 24 ANNUAL
CO POLLUTID NO2
CO TERRHGT ELEV
CO FLAGPOLE 1.5
CO RUNORNOT RUN
CO FINISHED

SO STARTING
SO ELEVUNIT METERS
SO LOCATION SRC1 POINT 829417.0 841235.0 6.3
** SRCDESCR Stack at Gugusoy
SO SRCPARAM SRC1 2.958000E-01 8 373 6 0.2
SO EMISFACT SRC1 HROFDY 0.23 0.23 0.23 0.23 0.23 0.41 0.41 0.41 0.41
SO EMISFACT SRC1 HROFDY 0.41 0.41 0.41 0.41 0.41 0.41 0.41 0.41 0.23
SO EMISFACT SRC1 HROFDY 0.23 0.23 0.23 0.23 0.23 0.23 0.23
SO EMISUNIT 1.0E+06 GRAMS/SEC MICROGRAMS/M**3
SO SRCGROUP ALL
SO FINISHED

RE STARTING
RE ELEVUNIT METERS
RE DISCCART 829484.0 841257.0 7 1.5
** RCPDESCR shelter / pavilion
RE DISCCART 829492.0 841265.0 7 1.5
** RCPDESCR Open space / sitting out area
RE DISCCART 829503.0 841269.0 7 1.5
** RCPDESCR Information Board
RE DISCCART 829509.0 841282.0 7 1.5
** RCPDESCR Mobile First Aid Station
RE FINISHED

ME STARTING
ME INPUTFIL D:\4082\TKL2006.ASC
ME ANEMHGHT 28.3 METERS
ME SURFDATA 00000 2006
ME UAIRDATA 11111 2006
ME STARTEND 2006 01 01 1 2006 12 31 24
ME FINISHED

OU STARTING
OU RECTABLE 1 FIRST
OU RECTABLE ALLAVE FIRST
OU MAXTABLE ALLAVE 10
OU FINISHED

** PROJECTN 0 104 7 -177 0 0.9996 500000 0
** OUTFILE D:\4082\test.lst
** RAWFILE D:\4082\test.RAW
** RAWFMT 2
** AMPDATUM 0
** HILLBOUN 0 0 0 0

** POLLUTNT IDN 01 SO2 X
** POLLUTNT NAM 01 Sulphur Dioxide
** POLLUTNT IDN 02 PM X
** POLLUTNT NAM 02 Particulate Matters
** POLLUTNT IDN 03 NO2 X
** POLLUTNT NAM 03 Nitrogen Dioxide
** POLLUTNT EMS SRC1 1.000000E+00 2.960000E-02 2.958000E-01

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

1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/23/08
*** ISCST Model for Chimney at Gugusoy *** 18:40:23
**MODELOPTs: RURAL ELEV FLGPOL GRDRIS PAGE 1
CONC
-----
*** MODEL SETUP OPTIONS SUMMARY ***
-----

**Intermediate Terrain Processing is Selected

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

-- SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION. DDPLETE = F
**Model Uses NO WET DEPLETION. WDPLETE = F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses RURAL Dispersion.

**Model Uses User-Specified Options:
1. Gradual Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.

**Model Accepts Receptors on ELEV Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates 2 Short Term Average(s) of: 1-HR 24-HR
and Calculates ANNUAL Averages

**This Run Includes: 1 Source(s); 1 Source Group(s); and 4 Receptor(s)

**The Model Assumes A Pollutant Type of: NO2

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

**Output Options Selected:
Model Outputs Tables of ANNUAL Averages by Receptor
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)

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

```



```

STABILITY          WIND SPEED CATEGORY
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
1 *** ISCST3 - VERSION 02035 ***      *** Construction of Cycle Tracks and the Associated Supporting Faciliti ***      12/23/08
*** ISCST Model for Chimney at Gugusoy ***      18:40:23
**MODELOPTS:      ***      ***      ***      ***      ***      ***      PAGE 7
CONC              RURAL ELEV  FLGPOL      GRDRIS

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

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FILE: D:\4082\TKL2006.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 0          UPPER AIR STATION NO.: 11111
NAME: UNKNOWN          NAME: UNKNOWN
YEAR: 2006            YEAR: 2006

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YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
06	01	01	01	300.0	2.10	290.6	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	02	340.0	1.50	290.8	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	03	280.0	0.70	290.7	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	04	280.0	0.40	290.6	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	05	280.0	1.00	290.4	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	06	280.0	1.40	290.2	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	07	290.0	1.50	290.2	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	08	290.0	1.30	290.2	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	09	300.0	2.60	290.9	4	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	10	300.0	2.30	292.1	3	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	11	200.0	1.10	293.6	2	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	12	100.0	1.10	294.9	1	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	13	100.0	1.40	296.5	1	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	14	100.0	0.90	298.7	2	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	15	280.0	1.70	297.6	2	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	16	300.0	2.60	296.5	2	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	17	300.0	0.70	295.3	4	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	18	300.0	1.90	293.1	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	19	300.0	2.30	291.5	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	20	300.0	0.80	290.8	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	21	320.0	2.20	290.4	5	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	22	330.0	2.10	290.1	5	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	23	320.0	1.80	290.1	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	24	330.0	0.90	289.7	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00

\*\*\* 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.

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1 *** ISCST3 - VERSION 02035 ***      *** Construction of Cycle Tracks and the Associated Supporting Faciliti ***      12/23/08
*** ISCST Model for Chimney at Gugusoy ***      18:40:23
**MODELOPTS:      ***      ***      ***      ***      ***      ***      PAGE 8
CONC              RURAL ELEV  FLGPOL      GRDRIS

```

\*\*\* EMISSION RATE DATA FOR \*\*\*  
NO2  
Nitrogen Dioxide

SOURCE ID	EMISSION RATE	SOURCE ID	EMISSION RATE	SOURCE ID	EMISSION RATE	SOURCE ID	EMISSION RATE
* SRC1	0.2958000E+00	*		*		*	

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1 *** ISCST3 - VERSION 02035 ***      *** Construction of Cycle Tracks and the Associated Supporting Faciliti ***      12/23/08
*** ISCST Model for Chimney at Gugusoy ***      18:40:23
**MODELOPTS:      ***      ***      ***      ***      ***      ***      PAGE 9
CONC              RURAL ELEV  FLGPOL      GRDRIS

```

\*\*\* THE ANNUAL ( 1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
INCLUDING SOURCE(S): SRC1 ,

\*\*\* DISCRETE CARTESIAN RECEPTOR POINTS \*\*\*

** CONC OF NO2		IN MICROGRAMS/M**3		**	
X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
829484.00	841257.00	1.69358	829492.00	841265.00	1.70170
829503.00	841269.00	1.56246	829509.00	841282.00	1.58048

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1 *** ISCST3 - VERSION 02035 ***      *** Construction of Cycle Tracks and the Associated Supporting Faciliti ***      12/23/08
*** ISCST Model for Chimney at Gugusoy ***      18:40:23
**MODELOPTS:      ***      ***      ***      ***      ***      ***      PAGE 10
CONC              RURAL ELEV  FLGPOL      GRDRIS

```

\*\*\* THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
INCLUDING SOURCE(S): SRC1 ,

\*\*\* DISCRETE CARTESIAN RECEPTOR POINTS \*\*\*

** CONC OF NO2		IN MICROGRAMS/M**3		**			
X-COORD (M)	Y-COORD (M)	CONC	(YYMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMDDHH)
829484.00	841257.00	120.59790	(06062509)	829492.00	841265.00	117.69342	(06062509)
829503.00	841269.00	109.99660	(06062509)	829509.00	841282.00	101.03226	(06080815)

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1 *** ISCST3 - VERSION 02035 ***      *** Construction of Cycle Tracks and the Associated Supporting Faciliti ***      12/23/08
*** ISCST Model for Chimney at Gugusoy ***      18:40:23
**MODELOPTS:      ***      ***      ***      ***      ***      ***      PAGE 10
CONC              RURAL ELEV  FLGPOL      GRDRIS

```

\*\*\* THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
INCLUDING SOURCE(S): SRC1 ,

\*\*\* DISCRETE CARTESIAN RECEPTOR POINTS \*\*\*

** CONC OF NO2		IN MICROGRAMS/M**3		**	
----------------	--	--------------------	--	----	--



Construction of Cycle Tracks and the Associated Supporting Facilities  
From Sha Po Tsuen to Shek Sheung River

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X-COORD (M)  Y-COORD (M)      CONC      (YYMMDDHH)      X-COORD (M)  Y-COORD (M)      CONC      (YYMMDDHH)
-----
      829484.00  841257.00      31.58146c (06083124)      829492.00  841265.00      27.24837c (06083124)
      829503.00  841269.00      25.27343c (06083124)      829509.00  841282.00      22.70435  (06071524)
1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/23/08
*** ISCST Model for Chimney at Gugusoy *** 18:40:23
**MODELOPTS:
CONC      RURAL ELEV  FLGPOL      GRDRIS

```

\*\*\* THE MAXIMUM 10 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
INCLUDING SOURCE(S): SRC1 ,

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3 \*\*

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	120.59790	(06062509)	AT (	829484.00, 841257.00)	DC	6.	116.83125	(06101410)	AT (	829492.00, 841265.00)	DC
2.	119.22198	(06061512)	AT (	829484.00, 841257.00)	DC	7.	116.62239	(06061512)	AT (	829492.00, 841265.00)	DC
3.	118.80826	(06101410)	AT (	829484.00, 841257.00)	DC	8.	116.61179	(06052311)	AT (	829492.00, 841265.00)	DC
4.	118.52853	(06052311)	AT (	829484.00, 841257.00)	DC	9.	116.40796	(06061911)	AT (	829484.00, 841257.00)	DC
5.	117.69342	(06062509)	AT (	829492.00, 841265.00)	DC	10.	116.17319	(06043016)	AT (	829484.00, 841257.00)	DC

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

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1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/23/08
*** ISCST Model for Chimney at Gugusoy *** 18:40:23
**MODELOPTS:
CONC      RURAL ELEV  FLGPOL      GRDRIS

```

\*\*\* THE MAXIMUM 10 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL \*\*\*  
INCLUDING SOURCE(S): SRC1 ,

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3 \*\*

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	31.58146c	(06083124)	AT (	829484.00, 841257.00)	DC	6.	21.52903c	(06090624)	AT (	829484.00, 841257.00)	DC
2.	27.24837c	(06083124)	AT (	829492.00, 841265.00)	DC	7.	21.15851c	(06090124)	AT (	829492.00, 841265.00)	DC
3.	26.42203c	(06090124)	AT (	829484.00, 841257.00)	DC	8.	20.52612c	(06090624)	AT (	829492.00, 841265.00)	DC
4.	25.27343c	(06083124)	AT (	829503.00, 841269.00)	DC	9.	18.81963c	(06090124)	AT (	829503.00, 841269.00)	DC
5.	22.70435	(06071524)	AT (	829509.00, 841282.00)	DC	10.	18.68867c	(06081924)	AT (	829484.00, 841257.00)	DC

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

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1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/23/08
*** ISCST Model for Chimney at Gugusoy *** 18:40:23
**MODELOPTS:
CONC      RURAL ELEV  FLGPOL      GRDRIS

```

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL ( 1 YRS) RESULTS \*\*\*

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 1.70170 AT (	829492.00, 841265.00,	7.00, 1.50) DC	NA
	2ND HIGHEST VALUE IS 1.69358 AT (	829484.00, 841257.00,	7.00, 1.50) DC	NA
	3RD HIGHEST VALUE IS 1.58048 AT (	829509.00, 841282.00,	7.00, 1.50) DC	NA
	4TH HIGHEST VALUE IS 1.56246 AT (	829503.00, 841269.00,	7.00, 1.50) DC	NA
	5TH HIGHEST VALUE IS 0.00000 AT (	0.00, 0.00,	0.00, 0.00)	
	6TH HIGHEST VALUE IS 0.00000 AT (	0.00, 0.00,	0.00, 0.00)	
	7TH HIGHEST VALUE IS 0.00000 AT (	0.00, 0.00,	0.00, 0.00)	
	8TH HIGHEST VALUE IS 0.00000 AT (	0.00, 0.00,	0.00, 0.00)	
	9TH HIGHEST VALUE IS 0.00000 AT (	0.00, 0.00,	0.00, 0.00)	
	10TH HIGHEST VALUE IS 0.00000 AT (	0.00, 0.00,	0.00, 0.00)	

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

```

1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/23/08
*** ISCST Model for Chimney at Gugusoy *** 18:40:23
**MODELOPTS:
CONC      RURAL ELEV  FLGPOL      GRDRIS

```

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS 120.59790	ON 06062509:	AT ( 829484.00, 841257.00,	7.00, 1.50) DC	NA

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

```

1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/23/08
*** ISCST Model for Chimney at Gugusoy *** 18:40:23
**MODELOPTS:
CONC      RURAL ELEV  FLGPOL      GRDRIS

```

\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3 \*\*

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS 120.59790	ON 06062509:	AT ( 829484.00, 841257.00,	7.00, 1.50) DC	NA

```
ALL      HIGH 1ST HIGH VALUE IS      31.58146c ON 06083124: AT ( 829484.00, 841257.00, 7.00, 1.50) DC NA

*** RECEPTOR TYPES: GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
                      BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/23/08
*** ISCST Model for Chimney at Gugusoy *** *** 18:40:23
**MODELOPTs:
CONC          RURAL ELEV FLGPOL          GRDRIS          PAGE 16

*** Message Summary : ISCST3 Model Execution ***

----- Summary of Total Messages -----
A Total of          0 Fatal Error Message(s)
A Total of          0 Warning Message(s)
A Total of         315 Informational Message(s)
A Total of          315 Calm Hours Identified

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

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

*****
*** ISCST3 Finishes Successfully ***
*****
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