CPV Gulfcoast Power Generating Facility
Application for Air Permit
Document ID: CPV-GC

Supplemental Report

Florida Department of Environmental Protection
Division of Air Resources Management

Prepared For:

CPV Gulfcoast, Ltd.

Prepared By:

TRC Environmental Corporation
Windsor, Connecticut

April 2001

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Section 1

Introduction

1.0 INTRODUCTION

CPV Gulfcoast, Ltd. (CPV) has recently submitted an application to construct a combined-cycle power generation facility near Piney Point in Manatee County, Florida. The Florida Department of Environmental Protection (FDEP) has issued a Prevention of Significant Deterioration (PSD) permit (PSD-FL-300) based on the permit application. CPV has recently included a Zero Liquid Discharge (ZLD) system in the facility design and is hereby providing the necessary data/information and supporting analysis to demonstrate that the inclusion of this system is not a major modification and will not change the facility's PSD Class II ambient air quality determination of "insignificant" impacts.

In addition to the emission sources reported in the application document titled "CPV Gulfcoast Power Generating Facility Application for Air Permit; Document ID: CPV-GC" dated September, 2000, the ZLD system proposed for the facility will result in an additional source of Particulate Matter (PM) emissions, most of which are expected to be below 10 micrometers in size, i.e., PM_{10}. These additional emissions will result from the waste water treatment system, which includes two mechanical forced draft cooling towers. As with the already permitted 5 cell cooling towers (CT), the waste water towers (WWT) will experience cooling tower drift with attendant emissions of dissolved solids contained in the water droplet drift.

Although the WWTs will be equipped with state-of-the-art drift eliminators designed to achieve a drift rate of 0.0005 percent of the circulating water flow rate, the higher dissolved solids concentration in the circulating water results in higher emission rates, compared to the fresh water CT. Emission rates have been estimated using manufacturer design data and expected water circulation rates and dissolved solids concentrations. Table 1-1 summarizes the parameters used to calculate the resulting emission rates. The total annual emissions for the ZLD system, i.e., two WWTs, are predicted to be 4.11 tons/yr. This increase in annual PM_{10} emissions is less than the major source modification threshold for PSD permitting. The predicted emission rate is based on a continuous 3,750 gallons/minute circulating flow rate. Consistently, emissions are assumed to also be released on a continuous basis at a rate of 0.94 lbs/hr or 0.118 g/sec.

The PM_{10} modeling analyses previously submitted to FDEP in the above referenced report have been updated to include the WWT sources and their respective emissions. The methods employed and the resulting predicted ambient air quality impacts are discussed in the following sections.

Table 1-1

Competitive Power Ventures – Gulfcoast Watewater Tower PM Emissions Calculations

Parameter	Units	Value
Cooling Tower Circulating Flow*	gal/min	3,750
Drift Fraction of Circulating Flow*	percent	0.0005
Drift Rate	gal/min	0.01875
Drift Rate	gal/hr	1.125
Water Density	lb/gal	9.163
Water Density Assumed for Cooling Water	lb/gal	9.163
Drift Rate	lb/min	0.17
Drift Rate	lb/hr	10.31
Convert lb/hr to g/s	g/s per lb/hr	0.126
Drift Rate	g/s	1.3
Dissolved & Suspended Solids in Water	mg/l	100,000
Dissolved & Suspended Solids in Water	g/l	100.0
Convert Liters to Gallons	l/gal	3.785
Dissolved & Suspended Soilds in Water	g/gal	378.50
PM Emissions	g/hr	425.8
PM Emissions	lb/hr*	0.94
PM Emissions	g/s	0.118
Number of Cells		2
PM Emissions	g/s per cell	0.059
Annual Emissions	tons/year	4.11
*1.0 lb/hr based on AEP-Proserv information		

Section 2

Modeling Analyses

2.0 MODELING ANALYSES

The basis for the PM_{10} modeling analyses to include the ZLD system are the ISCST3 modeling analyses described in the above referenced permit application document. The modeling analyses were performed using the same model, i.e., ISCST3, modeling inputs for the meteorological data, i.e., Tampa International Airport, 1987-1991, emission parameters for the combined-cycle turbine stack and 5-cell cooling tower and the same location and downwash input parameters for the same. The model inputs that were added or modified to integrate the WWT emissions are described below.

2.1 WWT Source Parameters

The emission rate for each WWT was assumed to be one-half of the total hourly emission rate or 0.47 lb/hr (0.059 g/sec). These emissions are assumed to be released continuously from the top of the fan opening, which is approximately 14 feet in diameter and 58 feet above ground level. The combined dimensions of the support structure for the two contiguous cells are 30 feet wide and 40 feet long. The actual height of the WWT structure is 18 feet with a 7 foot fan extension. The structure will be elevated on supports to obtain a release height of 58 feet, i.e., a height equal to the CT height. The WWT will be located approximately 165 meters due west of the 5-cell CT. Drawing number SC009 provided in Appendix A illustrates the revised project plan layout. Influences to dispersion of emissions from the WWT were evaluated using the BPIP software, as in the original analysis, to derive the direction-specific dimensions of the influencing structures. These dimensions were input to the ISCST3 model for each WWT cell.

2.2 Receptors

CPV has decided to extend the secured or fenced area of the site to include all of the owned property. Therefore, the ambient air boundary designation is equal to the property line boundary. Drawing SC008, given in Appendix A, illustrates the revised fence/property boundary. To be consistent with this new ambient air boundary, receptors inside the fenced property were removed and new receptors were added at 50 meters along the fenceline parameter. Refined receptors were also added parallel to the fence line boundary in 25 meter increments out to 100

meters from the fenceline. The original Cartesian and polar grids, revised to reflect the new fenceline, were retained in the analyses. Overall, 3454 receptors were used in the analyses including 63 fenceline and 588 refined grid receptors. As with the previous analyses all receptor elevations were assumed to be zero.

Section 3

Modeling Results

3.0 MODELING RESULTS

The ISCST3 model was run with the revisions noted to determine maximum 24-hour and annual average PM_{10} impacts. The overall maximum 24-hour average PM_{10} impact from all sources combined is 4.6 $\mu g/m^3$. The location of the maximum value is predicted to occur southeast of the CTs, in the refined grid near the fenceline. The maximum annual average PM_{10} impact is predicted to be 0.3 $\mu g/m^3$. Table 3-1 provides a summary of the previously-predicted maximum impacts and the new maximum impacts. Compared to the applicable Class II Significant Impact Levels (SILs), the predicted impacts are below the 24-hour average SIL of 5 $\mu g/m^3$ and the annual average SIL of 1 $\mu g/m^3$.

Table 3-1 CPV Gulfcoast Project Summary of Applicable PM_{10} Limits and Predicted Impacts

Pollutant	Averaging Period	NAAQS ($\mu g/m^3$)		PSD Class II ($\mu g/m^3$)				
		Primary	Secondary	Increment	SILs	Previous Predicted Impact	Revised Predicted Impact	Significant Impact?
Particulate (PM_{10})	24-hour	150[c]	N/A	30[a]	5	3.6	4.6	NO
	Annual	50[b]	N/A	17[b]	1	0.07	0.3	NO

a Not to be exceeded more that once per year.
b Never to be exceeded.
c The pre-existing form is exceedance-based. The revised form is the 99th percentile.

Section 4

Conclusion

4.0 CONCLUSION

The addition of a ZLD System at the Gulfcoast Facility, although a new source of PM_{10}, will result in very small differences in air quality impacts compared to those predicted previously, while resulting in an overall improvement in environmental impacts. Inclusion of the ZLD system to the permitted project does not constitute a PSD major modification and will not change the facility's PSD Class II ambient air quality determination of "insignificant" impacts. The ambient air quality impact associated with the air emissions of PM_{10} is predicted to be below the PSD Class II SILs. This result is consistent with previous modeling results and is expected to be minimal or insignificant relative to ambient air quality standards and other applicable limits. Therefore, the previously submitted application and resulting permit issuance are not materially effected by the inclusion of the ZLD system.

Appendix A

Air Permit Application Forms

Department of Environmental Protection

Division of Air Resources Management

APPLICATION FOR AIR PERMIT - TITLE V SOURCE

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

Identification of Facility

1. Facility Owner/Company Name: CPV Gulfcoast, Ltd.	
2. Site Name: CPV Gulfcoast	
3. Facility Identification Number:	[X] Unknown
4. Facility Location: Street Address or Other Locator: City: County: Manatee	Zip Code:
5. Relocatable Facility? [ ] Yes [X] No	6. Existing Permitted Facility? [ ] Yes [X] No

Application Contact

1. Name and Title of Application Contact: Sean Finnerty, Director of Development			
2. Application Contact Mailing Address: Organization/Firm: CPV Gulfcoast, Ltd. Street Address: 35 Braintree Hill Office Park, Suite 107 City: Braintree	State: MA	Zip Code: 02184	
3. Application Contact Telephone Numbers: Telephone: (781) 848-0253	Fax: (781) 848-5804		

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	4-19-01
2. Permit Number:	081 0194-003-AC
3. PSD Number (if applicable):	PSD-FL-300A
4. Siting Number (if applicable):	

Purpose of Application

Air Operation Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[ ] Initial Title V air operation permit for an existing facility which is classified as a Title V source.

[ ] Initial Title V air operation permit for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number:_____

[ ] Title V air operation permit revision to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number:_____

Operation permit number to be revised:_____

[ ] Title V air operation permit revision or administrative correction to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. (Also check Air Construction Permit Application below.)

Operation permit number to be revised/corrected:_____

[ ] Title V air operation permit revision for reasons other than construction or modification of an emissions unit. Give reason for the revision; e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit number to be revised:_____

Reason for revision:_____

Air Construction Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[X] Air construction permit to construct or modify one or more emissions units.

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:
   Gary Lambert, Executive Vice President

2. Owner/Authorized Representative or Responsible Official Mailing Address:
   Organization/Firm: CPV Gulfcoast, Ltd.
   Street Address: 35 Braintree Hill Office Park, Suite 107
   City: Braintree State: MA Zip Code: 02184

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:
   Telephone: (781) 848-0253 Fax: (781) 848-5804

4. Owner/Authorized Representative or Responsible Official Statement:

I, the undersigned, am the owner or authorized representative(check here [ ], if so) or the responsible official (check here [ ], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

Signature Date 4/19/01

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: Scott G. Sumner
   Registration Number: 44352

2. Professional Engineer Mailing Address:
   Organization/Firm: TRC
   Street Address: 21 Technology Drive
   City: Irvine State: CA Zip Code: 92618

3. Professional Engineer Telephone Numbers:
   Telephone: (949) 727-9336 Fax: (949) 727-7399

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [ ], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Signature

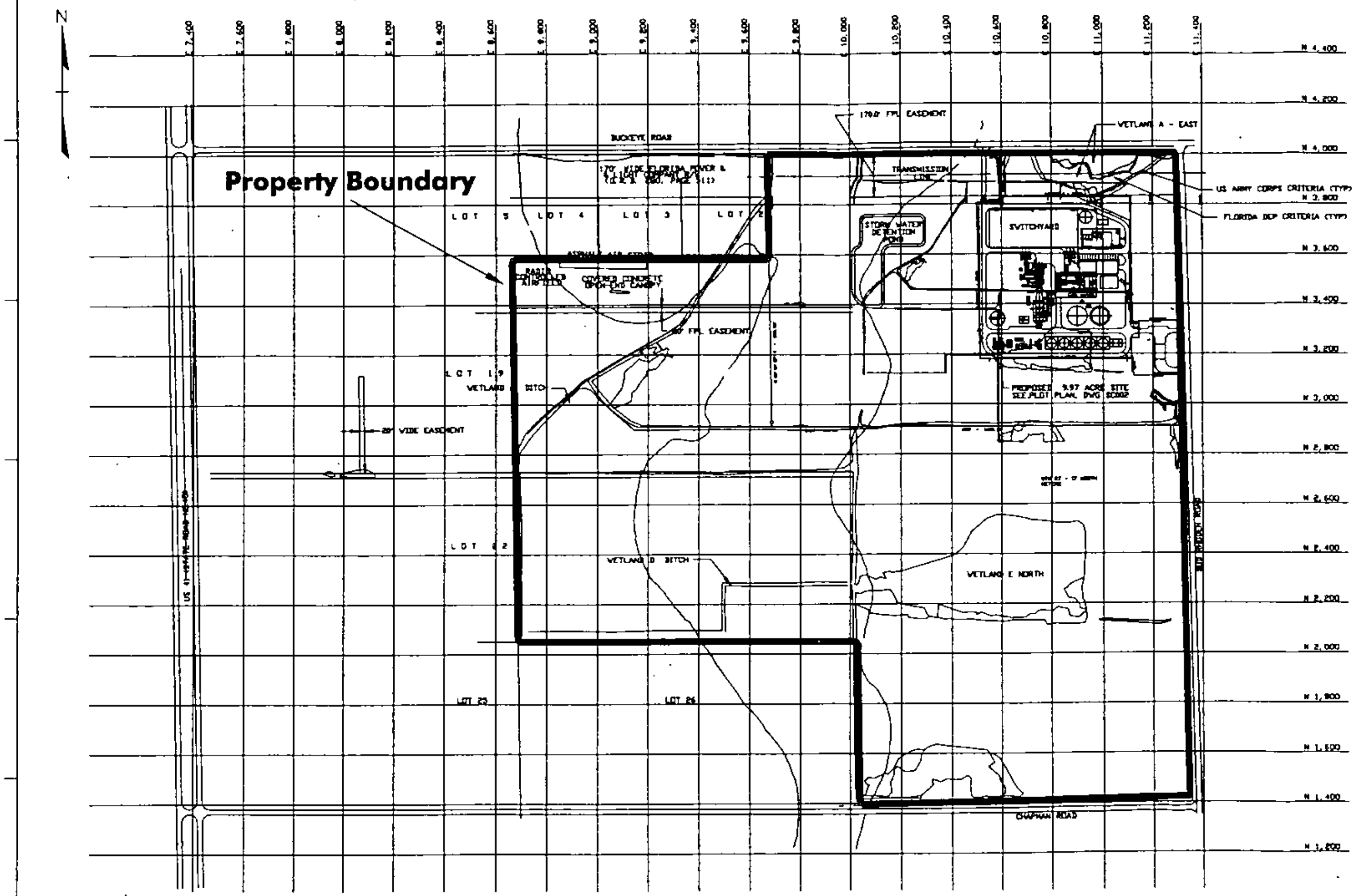
4-18-01
Date

(seal)

*

Appendix B

Engineering Drawings

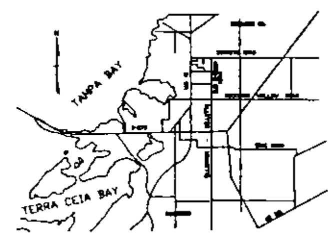


NOTES

1. PROPERTY LINES SHOWN ARE BASED ON SURVEY PREPARED BY LEO MILLS & ASSOCIATES,INC. 620 8TH AVENUE WEST, PALMETTO, FLORIDA 34221 JOB NO. 8-9750 CERTIFIED TO COMPETITIVE POWER VENTURES L. P. DATED 9/13/00. SEE SURVEY FOR ADDITIONAL INFORMATION NOT SHOWN ON THIS PLAN.
2. LOT IS SECTION 7 & 8, TOWNSHIP 33 SOUTH, RANGE 18 EAST, COUNTY OF MANATEE, FLORIDA.
3. WETLAND INFORMATION SHOWN IS BASED ON DRAWING TITLED "MANATEE WETLAND LINES", PREPARED BY THE LOUIS BERGER GROUP, INC., DATED MAY 2000, FILE JA2242MANATEE.APR. (SEE THIS DWG FOR ADDITIONAL INFORMATION NOT SHOWN)
4. OPEN SPACE/PLANT OCCUPANCY RATIO IS APPROXIMATELY 92.19 PERCENT.
5. UPLAND AREAS THAT ARE NOT USED FOR PLANT PURPOSES ARE AVAILABLE FOR AGRICULTURAL USES OR WILL BE RETAINED AS OPEN SPACE.

LEGEND

FPL = FLORIDA POWER AND LIGHT CO.



LOCATION PLAN
NTS

GRAPHIC SCALE
0 100 200 400 600
1" = 200.0'

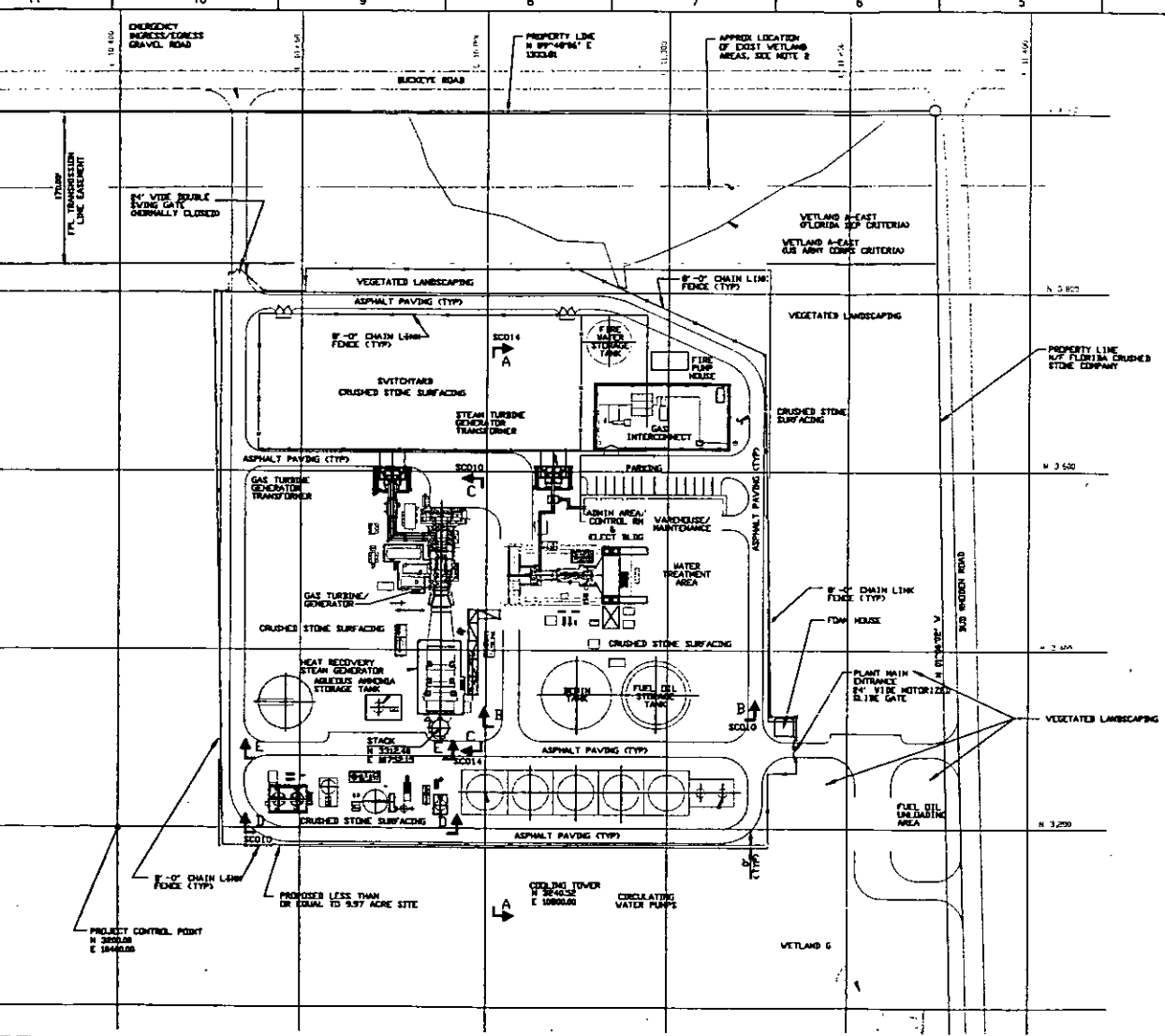
Rev	Revision	Date
C	PERMIT ISSUE	
D	PERMIT ISSUE, REVISED NOTES	
E	RELOCATED STORM WATER DETENTION POND	

CPV GULFCOAST POWER PROJECT
FLORIDA

SITE PLAN

BURNS AND ROE ENTERPRISES, INC.
Engineers and Constructors - Oradell, NJ

Work Order	Drawing No.	Rev
2377	SC008	E



NOTES

1. SEE DRAWING SC008
2. FOR WETLAND MAPPING AND DESIGNATIONS SEE "MANATEE WETLANDS LINES" DRAWING BY THE LOUIS BERGER GROUP INC. SHEET 1/1 DATED MAY 2000 (FILE: D:\...\MANATEE.APR)
3. OPEN SPACE/PLANT OCCUPANCY RATIO IS APPROXIMATELY 98.19 PERCENT.
4. ADMIN/CONTROL RM/WAREHOUSE AREA = 22,985 SQ FT, (0.5277 ACRES). F.A.R. = 0.5277 AC / 9.97 AC = 0.0529

LOCATION PLAN
NTS

GRAPHIC SCALE
0 30 60 120 180
1"=60'-0"

CPV GULFCOAST POWER PROJECT
FLORIDA

PROJECT PLOT PLAN

BURNS AND ROE ENTERPRISES, INC.
Engineers and Constructors - Oradell, NJ

Drawing No.	Rev
2377 SC009	K

Appendix C

Selected ISCST3 Input/Output File Pages

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CO STARTING
CO TITLEONE ***CPV GULFCOAST SUPPLEMENTAL CLASS II PM10 MODELING ANALYSIS ***
CO TITLETWO ***ADDITION OF WASTE WATER COOLING TOWER TO GULFCOAST FACILITY***
CO MODELOPT DFAULT CONC RURAL NOCMPL
CO AVERTIME 24 ANNUAL
CO POLLUTID OTHER
CO TERRHGTS FLAT
CO RUNORNOT RUN
CO FINISHED

SO STARTING
SO ELEVUNIT METERS
SO LOCATION STACK POINT 0.0 0.0 0
SO SRCPARAM STACK 5.67 45.72 397.04 14.2 5.64
SO BUILDHGT STACK      20.72    20.72    22.86    22.86    22.86    22.86
SO BUILDHGT STACK       22.86    22.86    22.86    22.86    22.86    22.86
SO BUILDHGT STACK       22.86    22.86    22.86    20.72    20.72    20.72
SO BUILDHGT STACK       20.72    20.72    22.86    22.86    22.86    22.86
SO BUILDHGT STACK       22.86    22.86    22.86    22.86    22.86    22.86
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SO BUILDWID STACK       21.87    21.87    19.88    85.71    78.95    69.80
SO BUILDWID STACK       50.32    53.39    19.88    21.87    21.87    21.87
SO BUILDWID STACK       21.87    21.87    21.87    21.87    21.87    21.87
SO BUILDWID STACK       21.87    21.87    19.88    85.71    78.95    69.80
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SO BUILDHGT CELL1       12.50    12.50    12.50    12.50    12.50    12.50
SO BUILDHGT CELL1       22.86    22.86    22.86    20.72    20.72    20.72
SO BUILDHGT CELL1       20.72    20.72    20.72    20.72    20.72    12.50
SO BUILDHGT CELL1       12.50    12.50    12.50    12.50    12.50    12.50
SO BUILDHGT CELL1       22.86    22.86    22.86    20.72    20.72    20.72
SO BUILDWID CELL1       67.79    63.72    57.71    54.62    52.74    49.25
SO BUILDWID CELL1       38.77    27.11    14.63    27.11    38.77    49.25
SO BUILDWID CELL1       21.28    21.28    19.88    85.71    78.95    45.72
SO BUILDWID CELL1       50.32    53.39    54.83    54.62    52.74    49.25
SO BUILDWID CELL1       38.77    27.11    14.63    27.11    38.77    49.25
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SO BUILDHGT CELL2       20.72    20.72    20.72    20.72    12.50    12.50
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SO BUILDHGT CELL2       22.86    22.86    22.86    20.72    20.72    20.72
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SO BUILDWID CELL2       38.77    27.11    14.63    27.11    38.77    24.68
SO BUILDWID CELL2       23.79    22.17    19.88    53.39    50.32    45.72
SO BUILDWID CELL2       50.32    53.39    54.83    54.62    58.23    49.25
SO BUILDWID CELL2       38.77    27.11    14.63    27.11    38.77    24.68
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SO BUILDHGT CELL3        20.72    20.72    20.72    12.50    12.50    12.50
SO BUILDHGT CELL3        12.50    12.50    12.50    12.50    22.86    20.72
SO BUILDHGT CELL3        22.86    22.86    20.72    20.72    20.72    20.72
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SO BUILDWID CELL3        38.77    27.11    14.63    27.11    24.82    24.68
SO BUILDWID CELL3        23.79    22.17    19.88    53.39    50.32    45.72
SO BUILDWID CELL3        50.32    53.39    54.83    65.44    58.23    49.25
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SO BUILDHGT CELL4        12.50    12.50    12.50    12.50    20.72    20.72
SO BUILDHGT CELL4        20.72    20.72    12.50    12.50    20.72    20.72
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SO BUILDWID CELL4        38.77    27.11    14.63    27.11    24.82    24.68
SO BUILDWID CELL4        23.79    22.17    54.83    53.39    50.32    45.72
SO BUILDWID CELL4        50.32    73.74    70.67    65.44    58.23    49.25
SO BUILDWID CELL4        38.77    27.11    14.63    27.11    79.15    85.84
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SO BUILDHGT CELL5        12.50    12.50    12.50    12.50    22.86    22.86
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SO BUILDWID CELL5        74.58    73.74    70.67    65.44    58.23    49.25
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SO LOCATION WASTE1  POINT -46.55 -20.15  0.0
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SO BUILDHGT WASTE1        0.00     0.00     0.00    22.86    22.86    22.86
SO BUILDHGT WASTE1       22.86    12.50    12.50    12.50     0.00     0.00
SO BUILDHGT WASTE1        0.00     0.00     0.00     0.00     0.00     0.00
SO BUILDWID WASTE1        0.00     0.00     0.00     0.00     0.00     0.00
SO BUILDWID WASTE1        0.00     0.00     0.00     0.00     0.00     0.00
SO BUILDWID WASTE1        0.00     0.00     0.00     0.00     0.00     0.00
SO BUILDWID WASTE1        0.00     0.00     0.00    22.17    23.79    24.68
SO BUILDWID WASTE1       24.82    27.11    14.63    27.11     0.00     0.00
SO BUILDWID WASTE1        0.00     0.00     0.00     0.00     0.00     0.00
SO LOCATION WASTE2  POINT -46.55 -14.60 0.0
SO SRCPARAM WASTE2  .059 17.68 -5.56 6.5 4.26
SO BUILDHGT WASTE2        0.00     0.00     0.00    22.86    22.86     0.00
SO BUILDHGT WASTE2        0.00     0.00     0.00     0.00     0.00     0.00
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SO BUILDHGT WASTE2        0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDHGT WASTE2        0.00      0.00      0.00     22.86     22.86     22.86
SO BUILDHGT WASTE2       22.86      0.00     12.50     12.50      0.00      0.00
SO BUILDHGT WASTE2        0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDWID WASTE2        0.00      0.00      0.00     22.17     23.79      0.00
SO BUILDWID WASTE2        0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDWID WASTE2        0.00      0.00      0.00      0.00      0.00      0.00
SO BUILDWID WASTE2        0.00      0.00      0.00     22.17     23.79     24.68
SO BUILDWID WASTE2       24.82      0.00     14.63     27.11      0.00      0.00
SO BUILDWID WASTE2        0.00      0.00      0.00      0.00      0.00      0.00

SO SRCGROUP ALL
SO SRCGROUP 1  CELL1 CELL2 CELL3 CELL4 CELL5
SO SRCGROUP 2  WASTE1 WASTE2
SO FINISHED

ME STARTING
ME INPUTFIL 12842-ALL.OUT
ME ANEMHGHT 10.
ME SURFDATA  12842 1987 TAMPA,FL
ME UAIRDATA  12842 1987 TAMPA,FL
ME FINISHED
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*** THE MAXIMUM 50 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STACK , CELL1 , CELL2 , CELL3 , CELL4 , CELL5 , WASTE1 ,
WASTE2 ,

** 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.	4.61744	(91021524)	AT (	168.61, -88.41)	DC	26.	2.96506	(88012824)	AT (	-466.86, -408.75)	DC
2.	4.54582	(91021524)	AT (	194.09, -113.37)	DC	27.	2.94879	(90102724)	AT (	-652.66, -369.87)	DC
3.	4.48742	(91021524)	AT (	201.20, -100.60)	DC	28.	2.94292	(91021524)	AT (	220.04, -163.32)	DC
4.	4.18722	(91021524)	AT (	219.09, -113.33)	DC	29.	2.93541	(88012824)	AT (	-516.50, -434.05)	DC
5.	4.07727	(91021524)	AT (	193.61, -88.37)	DC	30.	2.92113	(88092824)	AT (	-341.86, -408.00)	DC
6.	3.86871	(91021524)	AT (	219.56, -138.32)	DC	31.	2.92095	(87033124)	AT (	219.56, -138.32)	DC
7.	3.80803	(91021524)	AT (	244.57, -138.28)	DC	32.	2.87836	(87033124)	AT (	169.56, -138.40)	DC
8.	3.50274	(91021524)	AT (	244.09, -113.29)	DC	33.	2.87831	(91021524)	AT (	270.52, -188.23)	DC
9.	3.45528	(91021524)	AT (	194.56, -138.36)	DC	34.	2.87323	(90102724)	AT (	-701.66, -419.87)	DC
10.	3.41158	(91021524)	AT (	269.57, -138.24)	DC	35.	2.85377	(87033124)	AT (	220.04, -163.32)	DC
11.	3.40788	(91021524)	AT (	270.05, -163.24)	DC	36.	2.84962	(91021524)	AT (	269.10, -113.25)	DC
12.	3.36348	(91021524)	AT (	218.61, -88.33)	DC	37.	2.84862	(87111224)	AT (	-491.86, -408.90)	DC
13.	3.32691	(91021524)	AT (	245.04, -163.28)	DC	38.	2.84154	(88012824)	AT (	-541.50, -434.20)	DC
14.	3.27851	(90102724)	AT (	-627.66, -369.86)	DC	39.	2.84150	(87112324)	AT (	-630.69, -219.89)	DC
15.	3.22241	(88012824)	AT (	-442.22, -383.60)	DC	40.	2.81751	(91121724)	AT (	-442.22, -383.60)	DC
16.	3.20906	(87033124)	AT (	194.09, -113.37)	DC	41.	2.81142	(91021524)	AT (	301.80, -201.20)	DC
17.	3.19392	(87033124)	AT (	168.61, -88.41)	DC	42.	2.80594	(87111224)	AT (	-442.22, -383.60)	DC
18.	3.15532	(87033124)	AT (	194.56, -138.36)	DC	43.	2.80029c	(88012524)	AT (	195.03, -163.36)	DC
19.	3.13205	(88012824)	AT (	-491.86, -408.90)	DC	44.	2.78688	(87033124)	AT (	195.03, -163.36)	DC
20.	3.10614	(88012824)	AT (	-492.21, -383.90)	DC	45.	2.77273	(90102724)	AT (	-704.10, -402.30)	DC
21.	3.09277	(88012824)	AT (	-502.90, -402.30)	DC	46.	2.75780	(91110524)	AT (	-342.22, -383.00)	DC
22.	3.01474	(90102724)	AT (	-677.16, -394.87)	DC	47.	2.75745	(88012824)	AT (	-541.15, -459.20)	DC
23.	2.99856	(90102724)	AT (	-652.16, -394.86)	DC	48.	2.75435	(90102724)	AT (	-726.66, -419.87)	DC
24.	2.97677	(88012824)	AT (	-516.86, -409.05)	DC	49.	2.74885	(91030424)	AT (	168.61, -88.41)	DC
25.	2.96806c	(88012524)	AT (	169.56, -138.40)	DC	50.	2.74053	(88012824)	AT (	-491.50, -433.90)	DC

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

*** THE MAXIMUM 50 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 1 ***
INCLUDING SOURCE(S): CELL1 , CELL2 , CELL3 , CELL4 , CELL5 ,

** 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.	2.68265	(87033124)	AT (	168.61, -88.41)	DC	26.	1.66300	(87012224)	AT (	194.56, -138.36)	DC
2.	2.38147	(91042124)	AT (	168.61, -88.41)	DC	27.	1.64233	(87033124)	AT (	169.56, -138.40)	DC
3.	2.35095	(91030424)	AT (	168.61, -88.41)	DC	28.	1.62336	(87120424)	AT (	201.20, -100.60)	DC
4.	2.34865	(91021524)	AT (	168.61, -88.41)	DC	29.	1.62040	(91021524)	AT (	219.09, -113.33)	DC
5.	2.27916	(87033124)	AT (	194.09, -113.37)	DC	30.	1.61680	(88031924)	AT (	194.56, -138.36)	DC
6.	2.14057	(87120424)	AT (	168.61, -88.41)	DC	31.	1.58887c	(88012524)	AT (	195.03, -163.36)	DC
7.	2.04153	(87012224)	AT (	168.61, -88.41)	DC	32.	1.58082	(87120424)	AT (	194.09, -113.37)	DC
8.	2.01634	(91030424)	AT (	194.09, -113.37)	DC	33.	1.56913	(87111124)	AT (	168.61, -88.41)	DC
9.	1.96669	(87033124)	AT (	194.56, -138.36)	DC	34.	1.55761	(87033124)	AT (	219.09, -113.33)	DC
10.	1.93272	(88031924)	AT (	168.61, -88.41)	DC	35.	1.53547	(87033124)	AT (	220.04, -163.32)	DC
11.	1.92187c	(88012524)	AT (	169.56, -138.40)	DC	36.	1.52780	(87012224)	AT (	169.56, -138.40)	DC
12.	1.87119	(91021524)	AT (	193.61, -88.37)	DC	37.	1.52035c	(88012524)	AT (	220.04, -163.32)	DC
13.	1.84841	(87033124)	AT (	219.56, -138.32)	DC	38.	1.50002	(88031024)	AT (	169.56, -138.40)	DC
14.	1.84437	(91030424)	AT (	194.56, -138.36)	DC	39.	1.48700	(87012224)	AT (	219.56, -138.32)	DC
15.	1.84435	(91021524)	AT (	201.20, -100.60)	DC	40.	1.48635	(87033124)	AT (	245.04, -163.28)	DC
16.	1.81004	(87012224)	AT (	194.09, -113.37)	DC	41.	1.47793	(91042124)	AT (	219.09, -113.33)	DC
17.	1.78068c	(88012524)	AT (	194.56, -138.36)	DC	42.	1.46904	(87120424)	AT (	193.61, -88.37)	DC
18.	1.76920	(88031924)	AT (	169.56, -138.40)	DC	43.	1.46526	(90030324)	AT (	193.61, -88.37)	DC
19.	1.75867	(91021524)	AT (	194.09, -113.37)	DC	44.	1.46111	(87033124)	AT (	193.61, -88.37)	DC
20.	1.75100	(91042124)	AT (	194.09, -113.37)	DC	45.	1.46040	(90102524)	AT (	169.56, -138.40)	DC
21.	1.72261	(87033124)	AT (	201.20, -100.60)	DC	46.	1.45830	(87033124)	AT (	244.57, -138.28)	DC
22.	1.72051	(91042124)	AT (	193.61, -88.37)	DC	47.	1.45539	(91030424)	AT (	169.56, -138.40)	DC
23.	1.71977	(88031924)	AT (	194.09, -113.37)	DC	48.	1.44609	(87120424)	AT (	219.09, -113.33)	DC
24.	1.71826	(91042124)	AT (	201.20, -100.60)	DC	49.	1.43649	(88031424)	AT (	168.61, -88.41)	DC
25.	1.67316	(91030424)	AT (	219.56, -138.32)	DC	50.	1.43309	(90030324)	AT (	168.61, -88.41)	DC

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

*** THE MAXIMUM 50 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 2 ***
INCLUDING SOURCE(S): WASTE1 , WASTE2 ,

** 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.	3.25036	(90102724)	AT (	-627.66, -369.86)	DC	26.	2.64662	(89111224)	AT (	-341.86, -408.00)	DC
2.	3.19837	(88012824)	AT (	-442.22, -383.60)	DC	27.	2.64456	(87111224)	AT (	-502.90, -402.30)	DC
3.	3.10769	(88012824)	AT (	-491.86, -408.90)	DC	28.	2.64419	(88092824)	AT (	-366.50, -433.15)	DC
4.	3.08531	(88012824)	AT (	-492.21, -383.90)	DC	29.	2.63844	(89111224)	AT (	-342.22, -383.00)	DC
5.	3.06946	(88012824)	AT (	-502.90, -402.30)	DC	30.	2.61448	(87112324)	AT (	-655.70, -219.90)	DC
6.	2.97864	(90102724)	AT (	-677.16, -394.87)	DC	31.	2.60432	(91121724)	AT (	-466.86, -408.75)	DC
7.	2.96613	(90102724)	AT (	-652.16, -394.86)	DC	32.	2.58472	(91110524)	AT (	-341.86, -408.00)	DC
8.	2.95243	(88012824)	AT (	-516.86, -409.05)	DC	33.	2.58443	(89111224)	AT (	-366.50, -433.15)	DC
9.	2.94034	(88012824)	AT (	-466.86, -408.75)	DC	34.	2.58421	(90102724)	AT (	-702.17, -394.87)	DC
10.	2.91760	(90102724)	AT (	-652.66, -369.87)	DC	35.	2.58393	(88111524)	AT (	-342.22, -383.00)	DC
11.	2.90793	(88092824)	AT (	-341.86, -408.00)	DC	36.	2.56309	(90102724)	AT (	-676.65, -419.86)	DC
12.	2.90706	(88012824)	AT (	-516.50, -434.05)	DC	37.	2.55874	(88012824)	AT (	-565.79, -484.35)	DC
13.	2.84125	(87111224)	AT (	-491.86, -408.90)	DC	38.	2.54522	(87112324)	AT (	-680.20, -244.90)	DC
14.	2.83168	(90102724)	AT (	-701.66, -419.87)	DC	39.	2.54303	(90102724)	AT (	-726.16, -444.87)	DC
15.	2.82246	(87112324)	AT (	-630.69, -219.89)	DC	40.	2.53957	(87111224)	AT (	-466.86, -408.75)	DC
16.	2.81300	(88012824)	AT (	-541.50, -434.20)	DC	41.	2.53930	(88012824)	AT (	-590.79, -484.50)	DC
17.	2.81243	(91121724)	AT (	-442.22, -383.60)	DC	42.	2.52146	(91121724)	AT (	-491.86, -408.90)	DC
18.	2.79966	(87111224)	AT (	-442.22, -383.60)	DC	43.	2.51929c	(89110524)	AT (	-491.86, -408.90)	DC
19.	2.75541	(91110524)	AT (	-342.22, -383.00)	DC	44	2.51316	(91110524)	AT (	-366.86, -408.15)	DC
20.	2.73179	(90102724)	AT (	-704.10, -402.30)	DC	45.	2.51281	(88012824)	AT (	-516.15, -459.05)	DC
21.	2.72491	(88012824)	AT (	-541.15, -459.20)	DC	46.	2.51083	(88012824)	AT (	-541.86, -409.20)	DC
22.	2.71289	(88012824)	AT (	-491.50, -433.90)	DC	47.	2.50243c	(89091324)	AT (	-342.22, -383.00)	DC
23.	2.70809	(90102724)	AT (	-726.66, -419.87)	DC	48.	2.49411	(87111224)	AT (	-541.15, -459.20)	DC
24.	2.67380	(88012824)	AT (	-566.15, -459.35)	DC	49.	2.49136	(87112324)	AT (	-655.19, -244.89)	DC
25.	2.66449	(87111224)	AT (	-516.50, -434.05)	DC	50.	2.49094	(88012824)	AT (	-566.50, -434.35)	DC

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

**MODELOPTs:
CONC RURAL FLAT DFAULT NOCMPL

*** THE SUMMARY OF MAXIMUM ANNUAL (5 YRS) 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	0.29512 AT (	-442.22,	-383.60,	0.00,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.27526 AT (	-466.86,	-408.75,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.27525 AT (	-492.21,	-383.90,	0.00,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.27257 AT (	-491.86,	-408.90,	0.00,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.26896 AT (	-629.68,	-269.88,	0.00,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.26795 AT (	-502.90,	-402.30,	0.00,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.26479 AT (	-592.21,	-384.50,	0.00,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.26268 AT (	-628.67,	-319.87,	0.00,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.26220 AT (	-627.66,	-369.86,	0.00,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.26162 AT (	-542.21,	-384.20,	0.00,	0.00)	DC	NA
1	1ST HIGHEST VALUE IS	0.05638 AT (	168.61,	-88.41,	0.00,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.04426 AT (	169.56,	-138.40,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.04300 AT (	194.09,	-113.37,	0.00,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.04002 AT (	194.56,	-138.36,	0.00,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.03881 AT (	193.61,	-88.37,	0.00,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.03785 AT (	201.20,	-100.60,	0.00,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.03392 AT (	195.03,	-163.36,	0.00,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.03342 AT (	219.56,	-138.32,	0.00,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.03226 AT (	219.09,	-113.33,	0.00,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.03119 AT (	220.04,	-163.32,	0.00,	0.00)	DC	NA
2	1ST HIGHEST VALUE IS	0.29211 AT (	-442.22,	-383.60,	0.00,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.27176 AT (	-466.86,	-408.75,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.27170 AT (	-492.21,	-383.90,	0.00,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.26872 AT (	-491.86,	-408.90,	0.00,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.26399 AT (	-502.90,	-402.30,	0.00,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.26377 AT (	-629.68,	-269.88,	0.00,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.25923 AT (	-592.21,	-384.50,	0.00,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.25718 AT (	-542.21,	-384.20,	0.00,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.25696 AT (	-628.67,	-319.87,	0.00,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.25688 AT (	-441.86,	-408.60,	0.00,	0.00)	DC	NA

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

**MODELOPTs:
CONC RURAL FLAT DFAULT NOCMPL

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

** CONC OF OTHER 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	4.61744	ON 91021524: AT (	168.61, -88.41, 0.00, 0.00)	DC	NA
1	HIGH 1ST HIGH VALUE IS	2.68265	ON 87033124: AT (	168.61, -88.41, 0.00, 0.00)	DC	NA
2	HIGH 1ST HIGH VALUE IS	3.25036	ON 90102724: AT (	-627.66, -369.86, 0.00, 0.00)	DC	NA