UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

AUG 12 1991

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AUG 14 1991

Division of Air
Resources Management

4APT-AEB

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

0610029

RE: Vero Beach Municipal Power Plant (PSD-FL-152)

Dear Mr. Fancy:

This is to acknowledge receipt of the final determination and permit for the above referenced facility dated July 1, 1991. As discussed between Mr. Barry Andrews of your staff and Mr. Gregg Worley of my staff on August 2, 1991, we have reviewed the package and have the following comment.

A preliminary determination was made by FDER on December 21, 1990, that the application of selective catalytic reduction was appropriate as best available control technology for the 60 MW combined cycle turbine of this project. EPA concurred with this determination by letter dated January 28, 1991. Since that time, the applicant has proposed the use of low-NO_x burners under the "innovative control technology" provisions of the PSD regulations. Under the scenario proposed by the applicant and accepted by FDER, the GE Frame 6 turbine would be retrofitted with a low-NO_x burner no later than one year after operation commenced. In the event that the low-NO_x technology is not available, the applicant must retrofit SCR. The permit apparently allows the system to operate continuously at full capacity during the first year of operation. This is not consistent with other recently issued PSD permits for combustion turbines.

We have no adverse comments concerning the use of the "innovative control technology" provisions of the PSD regulations as they apply to this specific project; however, in order to maintain consistency we must strongly recommend that the permit be conditioned such that operation during the first year be limited to 25% (i.e., limit on the hours of operation).

Thank you for the opportunity to review and comment on this package and for addressing our earlier concerns. If you have any questions or comments, please contact Mr. Gregg Worley of my staff at (404) 347-2904.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

cc: S. Tilson
B. Andrews
C. Holladay
C. Collins, 2 Dist.
S. Massey, Van Buren
CHF

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dal Twachtmann, Secretary John Shearer, Assistant Secretary

June 5, 1990

L. W. Sherrill
Black & Veatch
8400 Ward Parkway
P. O. Box No. 8405
Kansas City, MO 64114

Dear Mr. Sherrill:

I have reviewed the Ambient Air Quality Impact Analysis Workplan for the proposed combustion turbine addition to the Vero Beach Municipal Power Plant you submitted to the Department. This workplan is acceptable. I have the following comments, though.

I discussed two minor errors with Mike Pelan in Tables 5-2 and 5-3 and asked him to submit revised tables with the PSD application. Also, I asked him to provide the dimensions of the dominant structure influencing the combustion turbine stack and to show how the wind direction specific building dimensions used for the building downwash inputs to the ISCSCT model were calculated.

If you have any questions, please call me at (904)488-1344.

Sincerely,

Cleve Holladay

Cleve Holladay
Meteorologist
Bureau of Air Regulation

CH/plm

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OF COUNSEL
W. ROBERT FOKES

RECEIVED
MAR 28 1991
DER-BAQM

March 27, 1991

Clair Fancy, P.E.
Bureau Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation
2600 Blair Stone Road, Room 338
Tallahassee, Florida 32399-2400

Re: City of Vero Beach
Municipal Power Plant - Unit 5
Permit File Nos. AC 31-184982
and PSD-FL-152
OGC File No. 91-0376
DOAH Case No. 91-1400EPP

Dear Clair:

Enclosed for the Department's consideration in connection with the referenced matter please find the following documents submitted on behalf of the City of Vero Beach as a follow up to our meeting last month:

Attachment "A" -- Summary of Information Supporting City of Vero Beach Position Regarding NO_x Control for Unit 5.

Attachment "B" -- Information on Selective Catalytic Reduction Costs for City of Vero Beach "Unit 5" Project.

Attachment "C" -- Comparison of Permitted and Projected NO_x Emission Levels from City of Vero Beach Municipal Power Plant.

The City hopes that the information provided in these attachments will be of assistance to the Department in

reconsidering the proposed emission limits and preliminary BACT determination for nitrogen oxides applicable to Unit 5 when operated in the combined cycle mode.

Your continued consideration in this matter is much appreciated.

Sincerely,

Peter C. Cunningham

VeroBeach:gbb

cc: Douglas MacLaughlin, Esquire
Barry Andrews

ATTACHMENT "A"

SUMMARY OF INFORMATION SUPPORTING CITY OF VERO BEACH POSITION REGARDING NO_x CONTROL FOR UNIT 5

(SCR COST INFORMATION IS DETAILED IN ATTACHMENT "B")

(NO_x EMISSION COMPARISONS ARE DETAILED IN ATTACHMENT "C")

Existing Generation

The City of Vero Beach Municipal Electric Plant currently consists of four gas and oil fired steam boilers and their related steam turbine electric generators, as follows:

Unit 1	12.5 MW
Unit 2	16.5 MW
Unit 3	33.0 MW
Unit 4	55.0 MW
Total	117.0 MW

Proposed Unit 5

The proposed Unit 5 combustion turbine will provide 40 MW of new gas or oil fired electric generating capacity. The proposed heat recovery steam generator (HRSG) to be built in conjunction with Unit 5 will enable the City to use waste heat from Unit 5 to provide an alternative source of steam for the existing Unit 2 steam turbine electric generator.

The existing Unit 2 steam boiler is in excellent condition and there are no plans to retire it. This boiler will remain in standby, and will be capable of supplying steam to the Unit 2 steam turbine electric generator at any time the new HRSG is unavailable for service. Of course, both the Unit 2 steam boiler and the Unit 5 HRSG will not operate at the same time.

Typical Operation Today

Unit 4 is currently the most efficient unit at the Vero Beach plant. It therefore dispatches first and operates essentially as a base load unit. The next most efficient unit at the Vero Beach plant, Unit 3, typically operates in the intermediate load range in response to system demand.

Typical Operation With Unit 5

The new Unit 5 combustion turbine, when operated in the combined cycle mode with the HRSG and the existing Unit 2 steam turbine electric generator, will be the most efficient unit at the Vero Beach plant. It will therefore be the first unit to be dispatched and will effectively substitute

for Unit 4 as a base load unit. Unit 3 or Unit 4 will then become the "regulating" unit for the Vero Beach system, and the loading on these units will vary depending on the system demand.

NOx Emission Characteristics of Unit 5

The new Unit 5 has the lowest NOx emission rate of any of the units at the Vero Beach plant in pounds per megawatt hour, as shown in the following table. This remains true whether the unit is operated in the simple cycle mode (producing 40 MW) or in the combined cycle mode (producing 60 MW).

	Potential NOx Emissions (Pounds/MWH)	
	Natural Gas	Oil
Unit 1	8.456	5.000
Unit 2	7.873	6.576
Unit 3	6.618	5.548
Unit 4	2.491	3.736
Unit 5 (Simple Cycle)	1.875	3.025
Unit 5 (Combined Cycle)	1.250	2.017

This low emission rate means that hourly NOx emissions from the Vero Beach plant will be reduced in the typical situation in which electricity generated by Unit 5 displaces generation by one of the other units at plant. 1/

1/ The only situation in which hourly NOx emissions would be increased is if the electricity generated by Unit 5 was in addition to generation by the other units. This situation could occur if the HRSG were not in operation and the City needed to call on the maximum capacity of all of its generating units. In that case, Unit 5 could operate in the simple cycle mode while Unit 2 was being fired by its existing steam generator. Even in this situation, the average NOx emissions per MWH of electricity generated would be lower than today, because of the relatively low emissions rate enjoyed by Unit 5.

Maximum Permitted NOx Emissions of Vero Beach Plant

The Vero Beach plant currently has permitted maximum annual NOx emissions of 2,589 tons/year (gas) and 2,451 tons/year (oil), assuming that existing Units 1 to 4 operate continuously at their maximum rated capacities. (See Base Case on Tables A and B)

The Notice of Intent to Issue Permit would allow Unit 5 to operate in a simple cycle mode with a NOx emissions limit of 42 ppmvd (gas) and 65 ppmvd (oil). These limits are based on using water injection as BACT in the simple cycle mode. The permitted maximum annual NOx emissions of the plant would thus increase to 2,917 tons/year (gas) and 2,981 tons/year (oil), assuming that all five units operate continuously at their maximum rated capacities, with Unit 5 operating in the simple cycle mode. (See Option 1 on Tables A and B)

Under the City's proposal for NOx emissions limits of 42 ppmvd (gas) and 65 ppmvd (oil) using water injection as BACT in the combined cycle mode, the permitted maximum annual NOx emissions would be 2,348 tons/year (gas) and 2,506 tons/year (oil). This assumes that all five units operate continuously at their maximum rated capacities, with Unit 5 operating in the combined cycle mode. (See Option 2 on Tables A and B).

For the natural gas firing scenario, the City's proposal represents a decrease in annual permitted NOx emissions of 241 tons/year compared to current permit levels, and a decrease of 569 tons/year compared to the level that would be allowed assuming simple cycle operation of Unit 5 under the Notice of Intent to Issue Permit.

For the oil firing scenario, the City's proposal represents a slight increase of 55 tons/year in annual permitted NOx emissions compared to current permit levels, but a decrease of 475 tons/year compared to DER's proposed permit levels for Unit 5 in simple cycle operation.

Potential NOx Emissions Under Projected Load Conditions

As an alternative to analyzing maximum annual permitted NOx emissions, the City has also examined potential NOx emissions under projected load conditions. The results of this analysis are shown in graphic form on Figure 3. As that figure demonstrates, the projected annual NOx emissions with Unit 5 available to run only in the simple cycle mode

are significantly lower than expected NOx emissions without Unit 5. This reduction occurs because the electricity generated by Unit 5, with its relatively low emissions rate, displaces electricity that would otherwise have been generated by units with higher emissions rates.

This projected reduction in annual NOx emissions is even greater when Unit 5 operates in the combined cycle mode, which is expected to be its normal method of operation.

Tables C and D present these comparative NOx emissions projections in tabular form for the years 1992 and 1999. As these tables show, total annual NOx emissions are reduced approximately 197 tons/year (1992) and 239 tons/year (1999) if Unit 5 is added and operated only in the simple cycle mode. These reductions are even greater, approximately 417 tons/year (1992) and 507 tons/year (1999), if Unit 5 is added and operated in the combined cycle mode. This represents a 38% decrease in the combined cycle mode and an 18% decrease in the simple cycle mode in annual NOx emissions compared to the base case scenario in which the same amount of electricity is generated by the existing Units 1 to 4.

Conclusion

The City's proposal for NOx emissions limits of 42 ppmvd (gas) and 65 ppmvd (oil) based on water injection provides significant emission reductions whether compared to the maximum permitted emissions for the Vero Beach plant or to the expected emissions from that plant under projected load conditions.

While additional emission reductions could be obtained by the use of selective catalytic reduction (SCR) when Unit 5 is operated in the combined cycle mode, the City submits that these additional reductions are not justified when consideration is given to (1) the significant reductions which already result from the addition of Unit 5 with water injection to the Vero Beach plant, (2) the significant additional cost (approximately $4,500 to 4,700 per ton) associated with the incremental NOx reductions that could be achieved by the use of SCR.

Table A

PERMITTED MAXIMUM -- 100% GAS FIRING

	NOx Emissions on Natural Gas (Tons/Yr)	Emissions Difference from Base Case (Tons/Yr)	Emissions Difference from Option 1 (Tons/Yr)
BASE CASE			
Existing Plant (Permitted)	2,589	---	-328
OPTION 1			
Existing Plant & Unit 5 (Simple Cycle) without SCR (Proposed by Appliant and Permittable per Notice of Intent)	2,917	+328	---
OPTION 2			
Existing Plant & Unit 5 (Combined Cycle) without SCR (Proposed by Applicant)	2,348	-241	-569
OPTION 3			
Existing Plant & Unit 5 (Combined Cycle) with SCR (Proposed by DER)	2,085	-504	-832

Table B

PERMITTED MAXIMUM -- 100% OIL FIRING

	NOx Emissions On Oil (Tons/Yr)	Emissions Difference from Base Case (Tons/Yr)	Emissions Difference from Option 1 (Tons/Yr)
BASE CASE			
Existing Plant (Permitted)	2,451	---	-530
OPTION 1			
Existing Plant & Unit 5 (Simple Cycle) without SCR (Proposed by Appliant and Permittable per Notice of Intent)	2,981	+530	---
OPTION 2			
Existing Plant & Unit 5 (Combined Cycle) without SCR (Proposed by Applicant)	2,506	+55	-475
OPTION 3			
Existing Plant & Unit 5 (Combined Cycle) with SCR (Proposed by DER)	2,162	-289	-319

Table C

PROJECTED EMISSIONS -- 1992

	NOx Emissions On Gas & Oil (Tons/Yr)	Emissions Difference from Base Case (Tons/Yr)	Emissions Difference from Option 1 (Tons/Yr)
BASE CASE			
Existing Plant (Permitted)	1,091	---	+197
OPTION 1			
Existing Plant & Unit 5 (Simple Cycle) without SCR (Proposed by Appliant and Permittable per Notice of Intent)	894	-197	---
OPTION 2			
Existing Plant & Unit 5 (Combined Cycle) without SCR (Proposed by Applicant)	674	-417	-220
OPTION 3			
Existing Plant & Unit 5 (Combined Cycle) with SCR (Proposed by DER)	523	-568	-371

Table D

PROJECTED EMISSIONS -- 1999

	NOx Emissions On Gas & Oil (Tons/Yr)	Emissions Difference from Base Case (Tons/Yr)	Emissions Difference from Option 1 (Tons/Yr)
BASE CASE			
Existing Plant (Permitted)	1,328	---	+239
OPTION 1			
Existing Plant & Unit 5 (Simple Cycle) without SCR (Proposed by Appliant and Permittable per Notice of Intent)	1,089	-239	---
OPTION 2			
Existing Plant & Unit 5 (Combined Cycle) without SCR (Proposed by Applicant)	821	-507	-268
OPTION 3			
Existing Plant & Unit 5 (Combined Cycle) with SCR (Proposed by DER)	637	-691	-452

ATTACHMENT "B"

INFORMATION ON SELECTIVE CATALYTIC REDUCTION COSTS FOR CITY OF VERO BEACH "UNIT 5" PROJECT

Prepared by Black & Veatch

Capital Cost	Scope	Price $ 1,000
1)SCR Reactor	Evaporator System HRSG Modifications Catalyst & Housing CEM Analyzer Inj. Grid Piping & Valves (AIG to Header) Dilution Fan	$1,154
2) SCR Auxiliaries and NH_3 Storage	Tank Piping & Valves Burm Pumps	$125
3) Erection & Engineering	Installation	$218
4) Balance of Equipment	Foundations Ammonia System Erection Misc. Piping & Valves	$37
Total Capital Cost		$1,534
5) Contingency (15%)	Accounts for unforseen price increases.	$230
6) Escalation (6%)	Accounts for price increase between the time of the evaluation and when the equipment is purchased (mid-point of construction)	$70
7) Indirects (16%)	Accounts for the cost of goods and services that are not directly related to the cost of the equipment.	$293
8) Interest During Construction (8%)	Assumes that all payments are made on a lump sum basis at the midpoint of construction. It represent the interest accrued on the capital from the time it is spent until commercial operation.	$83
Total Installed Cost		$2,210

Annual Operating Costs:		
9) Operation and Maintenance Cost	Catalyst replacement Maintenance Labor Operating Labor ECM parts and service Catalyst freight	$614
10) Ammonia Usage	Cost of the ammonia used in the process.	$68
11) Heat Rate Penalty	Includes the additional fuel cost as a result of the additional back pressure created by the SCR.	$Neg.
12) Power Consumption	Auxiliary power requirements to run the SCR system.	$41
13) Lost Generating Capacity	The additional back pressure created by SCR reduces the output of the CT. This lost power will then have to be replaced by other system capacity. There are two components; 1) the cost of building additional capacity and 2) the operating cost of the additional capacity.	$149
Total Operating Cost		$873
14) Fixed Charges on Capital	This represents the annualized portion of total capital cost. The fixed charge rate includes the cost of money, taxes, insurance, and administrative costs.	$248
Total Annual Cost		$1,121

CAPITAL COSTS:	Standard Combustor Design Plus SCR	Standard Combustor Design
	$1,000	$1,000
Differential Combustion(1) turbine costs	Base	Base
HRSG Modification	NA	Base
SCR reactor	1154	Base
SCR Auxilliaries and ammonia storage	125	Base
Water treatment, storage, and injection equipment	NA	Base
SCR Erection	218	Base
Foundations, Ammonia System Erection & BOP Equipment	37	Base
Total Capital Cost	1534	Base
Contingency, (15%)	230	Base
Subtotal	1764	Base
Escalation, (6%)	70	Base
Total Escalated Cost	1834	Base
Sales Tax, (0%)	0	Base
Subtotal	1834	Base
Indirects, (16.0%)	293	Base
IDC, (8.00%)	83	Base
Total Installed Costs	2210	Base

LEVELIZED ANNUAL COST:

Differential O&M Cost	614	Base
Ammonia	68	NA
Energy		
Heat Rate Penalty	0	Base
Power Consumption	41	Base
Lost Generating Capacity & Energy	149	Base
	873	Base
Fixed Charges on Capital,(11.20%)	248	Base
Total Annual Cost	1121	Base
Incremental Total Annual Cost	1121	Base
Annual NOx Emission, tpy		
Gas, tpy	67	312
Oil, tpy	0	0
	67	312
Tpy removed	245	
$/ton Removed	4573	

Oil

Capital Cost	Scope	Price $ 1,000
1)SCR Reactor	Evaporator System HRSG Modifications Catalyst & Housing CEM Analyzer Inj. Grid Piping & Valves (AIG to Header) Dilution Fan	$1,154
2) SCR Auxiliaries and NH_3 Storage	Tank Piping & Valves Burm Pumps	$125
3) Erection & Engineering	Installation	$219
4) Balance of Equipment	Foundations Ammonia System Erection Misc. Piping & Valves	$37
Total Capital Cost		$1,535
5) Contingency (15%)	Accounts for unforseen price increases.	$230
6) Escalation (6%)	Accounts for price increase between the time of the evaluation and when the equipment is purchased (mid-point of construction)	$70
7) Indirects (16%)	Accounts for the cost of goods and services that are not directly related to the cost of the equipment.	$294
8) Interest During Construction (8%)	Assumes that all payments are made on a lump sum basis at the midpoint of construction. It represent the interest accrued on the capital from the time it is spent until commercial operation.	$84
Total Installed Cost		$2,213

Annual Operating Costs:		
9) Operation and Maintenance Cost	Catalyst replacement Maintenance Labor Operating Labor ECM parts and service Catalyst freight	$836
10) Ammonia Usage	Cost of the ammonia used in the process.	$86
11) Heat Rate Penalty	Includes the additional fuel cost as a result of the additional back pressure created by the SCR.	$Neg.
12) Power Consumption	Auxiliary power requirements to run the SCR system.	$61
13) Lost Generating Capacity	The additional back pressure created by SCR reduces the output of the CT. This lost power will then have to be replaced by other system capacity. There are two components; 1) the cost of building additional capacity and 2) the operating cost of the additional capacity.	$212
Total Operating Cost		$1194
14) Fixed Charges on Capital	This represents the annualized portion of total capital cost. The fixed charge rate includes the cost of money, taxes, insurance, and administrative costs.	$248
Total Annual Cost		$1,442

E-4

CAPITAL COSTS:	Standard Combustor Design Plus SCR	Standard Combustor Design
	$1,000	$1,000
Differential Combustion(1) turbine costs	Base	Base
HRSG Modification	NA	Base
SCR reactor	1154	Base
SCR Auxilliaries and ammonia storage	125	Base
Water treatment, storage, and injection equipment	NA	Base
SCR Erection	219	Base
Foundations, Ammonia System Erection & BOP Equipment	37	Base
Total Capital Cost	1535	Base
Contingency, (15%)	230	Base
Subtotal	1765	Base
Escalation, (6%)	70	Base
Total Escalated Cost	1835	Base
Sales Tax, (0%)	0	Base
Subtotal	1835	Base
Indirects, (16.0%)	294	Base
IDC, (8.00%)	84	Base
Total Installed Costs	2213	Base

Oil

LEVELIZED ANNUAL COST:

Differential O&M Cost	836	Base
Ammonia	86	NA
Energy		
Heat Rate Penalty	0	Base
Power Consumption	61	Base
Lost Generating Capacity & Energy	212	Base
	1194	Base
Fixed Charges on Capital,(11.20%)	248	Base
Total Annual Cost	1442	Base
Incremental Total Annual Cost	1442	Base
Annual NOx Emission, tpy		
Gas, tpy	0	0
Oil, tpy	193	503
	193	503
Tpy removed	310	
$/ton Removed	4658	

ATTACHMENT "C"

COMPARISON OF PERMITTED AND PROJECTED NO_x EMISSION LEVELS FROM CITY OF VERO BEACH MUNICIPAL POWER PLANT

Prepared by Black & Veatch

BLACK & VEATCH

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 339-2000

Vero Beach, Florida
Municipal Power Plant - Unit 5

B&V Project 16834
B&V File 32.0402
March 11, 1991

Florida Department of Environmental Regulation
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Attention: Mr. Clair Fancy

Gentlemen:

Thank you for the opportunity to meet with you in your offices on February 12, 1991. We are anxious to work with you to allow construction to begin on the new generating unit in a timely manner in order to meet load demands which are forecasted for the City of Vero Beach Municipal Electric System.

As we discussed, the new combustion turbine project which is being planned for the City of Vero Beach is unique in the manner in which it will be operating. Some of the project's features include the following:

> The Combustion turbine unit will be capable of black start to loaded condition within ten minutes. This feature will allow the unit to meet the Florida Coordinating Group's criteria for spinning reserve and could thus avoid the requirement of having a spare steam-turbine generator in operation to handle unexpected outages on the interconnected system.
>
> The existing unit 2 steam generator is in excellent condition and there are no plans to retire it. The unit will remain in standby and will be capable of supplying steam to the unit 2 steam turbine at any time the new Heat Recovery Steam Generator (HRSG) is unavailable for service. Of course, both the Unit 2 steam generator and the Unit 5 HRSG will not operate at the same time. The attached operating diagram (figure 1) we presented during the meeting indicate the two distinct operating modes.

The City of Vero Beach owns 10.8 MW of generation at the St. Lucie Nuclear station and 18.8 MW of the coal fueled Stanton Energy Center in Orlando. These units will normally be dispatched first since they are the most efficient generation owned by the City, however the operation of the Vero Beach plant with Unit 5 in service will provide the City with another very efficient generation source and will also provide considerable flexibility in meeting the system load. The new Unit 5 Combustion Turbine, when

operated in combined cycle with Unit 2 steam turbine, will become the most efficient unit at the Vero Beach plant and will therefore become the first units to be dispatched from the Vero Beach plant site. The existing Unit 3 or Unit 4 will then become the regulating unit for the Vero Beach system. The instantaneous loading of these units will be variable, depending on the system demand.

The attached tables were presented at our meeting to show that the potential hourly NO_x emissions from the plant will decrease with the operation of Unit 5 combustion turbine when it is operated with existing unit 2 in the combined cycle mode. Tables 1 through 8 show various system operating conditions and the resulting NO_x emissions rates in pounds per hour as follows. A brief explanation of the information which was presented in each table is repeated here for your convenience.

Table 1 shows the currently permitted NO_x emission rates in pounds per hour with all existing units operating at full capacity. Unit 1, 2, and 3 do not have a permit restriction on NO_x, therefore the data is based on average AP-42 emission factors for natural gas and residual oil fuel for units of this size.

Table 2 shows the NO_x emission rates with the proposed Unit 5 combustion turbine operating in simple cycle mode and all other units operating at full capacity. There would of course be an increase in NO_x emissions under this scenario by the amount of new emissions attributed to Unit 5. Note, however, that the NO_x emission rate of the new combustion turbine is less than that of any other existing units.

Table 3 shows the operating condition with the new combustion turbine Unit 5 operating in combined cycle with existing Unit 2 steam turbine and all other units operating at maximum capacity. This operating scenario shows a net decrease of 9.3 % in NO_x emission rates from the current condition when operating on natural gas and only a 2.2 % increase when burning number 2 fuel oil.

Table 4 shows the emission rates of the plant at full capacity if the new Unit 5 were operated in combined cycle with Unit 2 and a Selective Catalytic Reduction device were also installed. The emission rates in this instance are further reduced by another 11 % when firing gas and 13.2 % when burning oil.

Table 5 shows Unit 4 only operating at full load condition while all other units are off. This is an operating scenario which currently is not unusual at the Vero Beach plant during light system load conditions. Since the existing Unit 4 is the most efficient unit at the Vero Beach plant, it would normally be the first unit at the plant to be dispatched.

Table 6 shows a similar load condition using the new Unit 5 combustion turbine operating in simple cycle and the existing unit 2 operating as a conventionally fired boiler. This operating condition would meet approximately the same load as that shown in Table 5.

Table 7 shows Unit 5 in combined cycle operation with Unit 2 only. This condition will result in a decrease in emissions of 62 lb/hr or 45.3 % on gas and 84.5 lb/h or 42.2% on oil over existing unit 4 operation.

Table 8 is the comparable case when Unit 5 is operating in combined cycle with Unit 2 and an SCR is installed on the HRSG. This shows an additional reduction of 60 lb/hr on gas and 78.5 lb/hr on oil from table 7.

As you requested, we are also enclosing additional data which reasonably address the total annual NO_x emissions under projected load conditions. In order to establish a baseline for comparison of NO_x emissions from the Vero Beach plant, both with and without an SCR on the new HRSG, the future net annual KWHR energy requirements for the Vero Beach system was used to establish the maximum potential generating hours for the plant. This projection was made by R. W. Beck and Associates. The generation available at both St. Lucie nuclear and Stanton Energy Center were not included in the analysis.

The annual Kilowatt-hour (KWHR) energy load growth projection is shown in Figure 3. The projected peak load kilowatt (KW) demand growth is shown in Figure 2.

The allocation of generation from each of the four existing units was made using the same percent contribution of total annual KWHR energy generation that each unit actually contributed in 1990. For example, in 1990 Unit 1 was responsible for 3.2 % of the total generation. Units 2, 3, and 4 were responsible for 4.8, 18.4, and 73.6 percent of the total annual KWHR of generation, respectively. The City could meet the annual Kilowatt-hour energy projection through 1999 (see figure 3) utilizing the existing capacity at the plant. However, it could not meet the projected Kilowatt peak demand after 1993 without the additional generating capacity from the new Unit 5 (see figure 2).

The annual NO_x emissions for this baseline reference case is shown in the top curve of Figure 4. This projection was made using the same ratio of natural gas to fuel oil usage as the past three years' average fuel use. Annual NO_x emissions for each unit were based on the unit's rated capacity and its potential NO_x emission rate. The potential NO_x emission rates were derived from AP-42 emission factors (Units 1, 2, and 3) and NSPSs criteria for Unit 4. The emission rates are consistent with the rates used in the earlier analysis (submitted during our meeting of 2/12/91) and FDER emission inventory methods.

A second case for projected annual NO_x emissions shown in the center curve of Figure 4 was made for the scenario where Unit 5 is installed as a simple cycle unit only, beginning in 1992 with 5000 hours of operation. Hours of operation for subsequent years were then incremented upward at the same percentage rate as the KWHR energy load projection. Annual NO_x emissions for Unit 5 were based on the proposed (and approved) BACT limits of 42/65 ppmvd for natural gas and fuel oil firing in the simple cycle mode,

respectively. The load distribution percentages for Units 1 through 4 is in the same ratio as in the first case.

The third case shown on the bottom curve of figure 4 is for annual NO_x emissions with Unit 5 and Unit 2 operating in combined cycle. Otherwise the distribution of total generation is the same as in case 2. In this case however, the Unit 2 steam generator is not operating and therefore does not contribute any NO_x emission.

The results shown in Figure 4 demonstrate that, with this model, the potential annual NO_x emissions from the Vero Beach plant with Unit 5 installed are less than the potential emissions using the current plant configuration (i.e. without Unit 5).

The current permitted maximum potential annual NO_x emission from the Vero Beach plant is 2,589 tons per year for natural gas and 2,451 tons per year for fuel oil. These values will increase to a maximum of 2,917 and 2,981 tons per year for natural gas and fuel oil respectively with the addition of Unit 5 in the simple cycle mode at the permit conditions of 25/65 ppmvd. With Unit 5 operating in the combined cycle mode, even <u>without</u> Selective Catalytic Reduction, the maximum potential annual NO_x emission would be lower (2,348 tons per year for natural gas, and 2,506 tons per year for fuel oil combustion).

Although the above annual operating models are straight line examples, we believe that the relative NO_x emissions would be comparable to any actual operating scenarios.

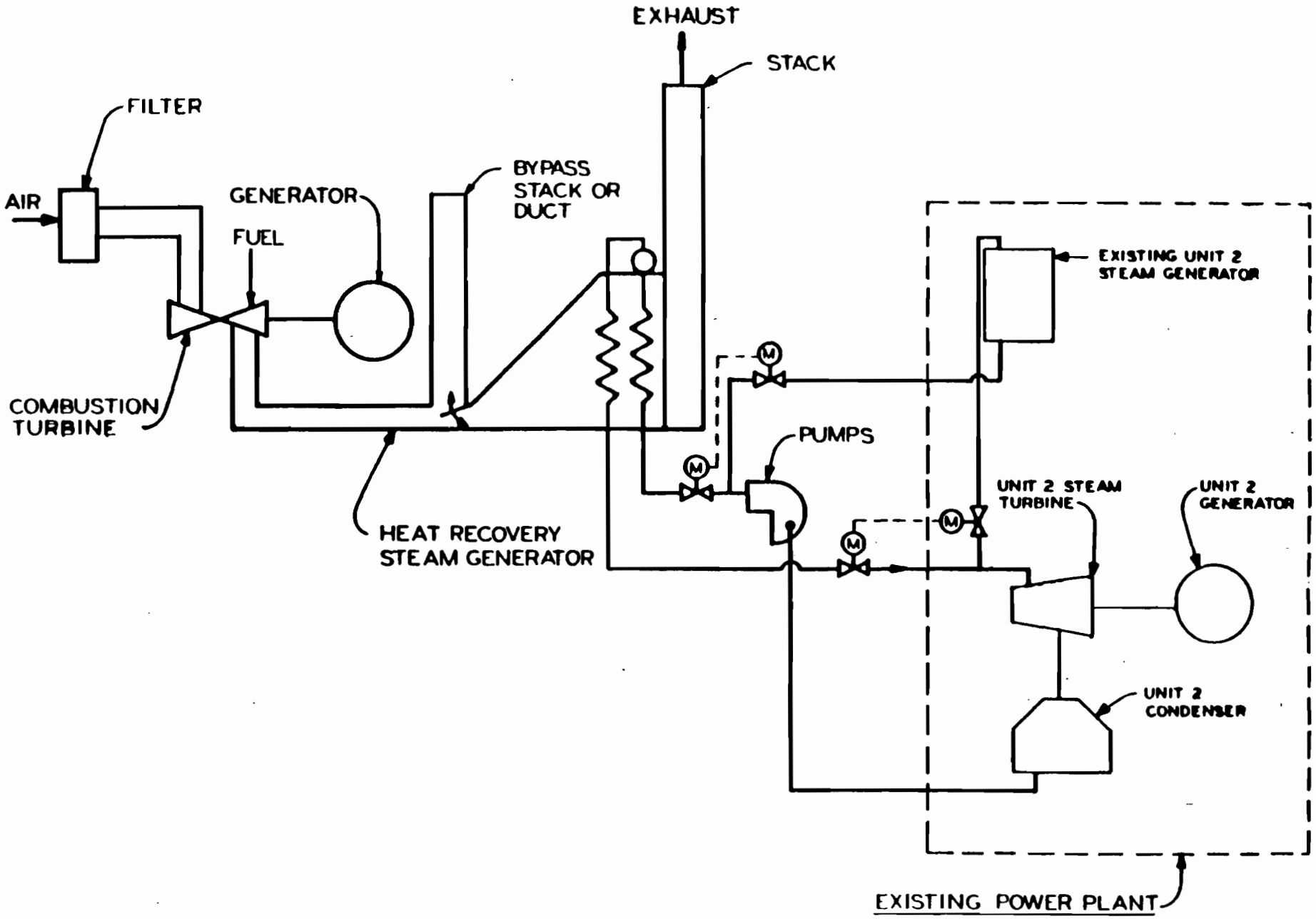
We appreciate this opportunity to respond to your concerns. If you have any questions, please let us know.

Yours very truly,

BLACK & VEATCH

L. W. Sherrill

cc: Mr. Shuler Massey
Mr. Peter Cunningham



VERO BEACH
COMBUSTION TURBINE COMBINED CYCLE PROJECT

FIGURE 1

FIGURE 2

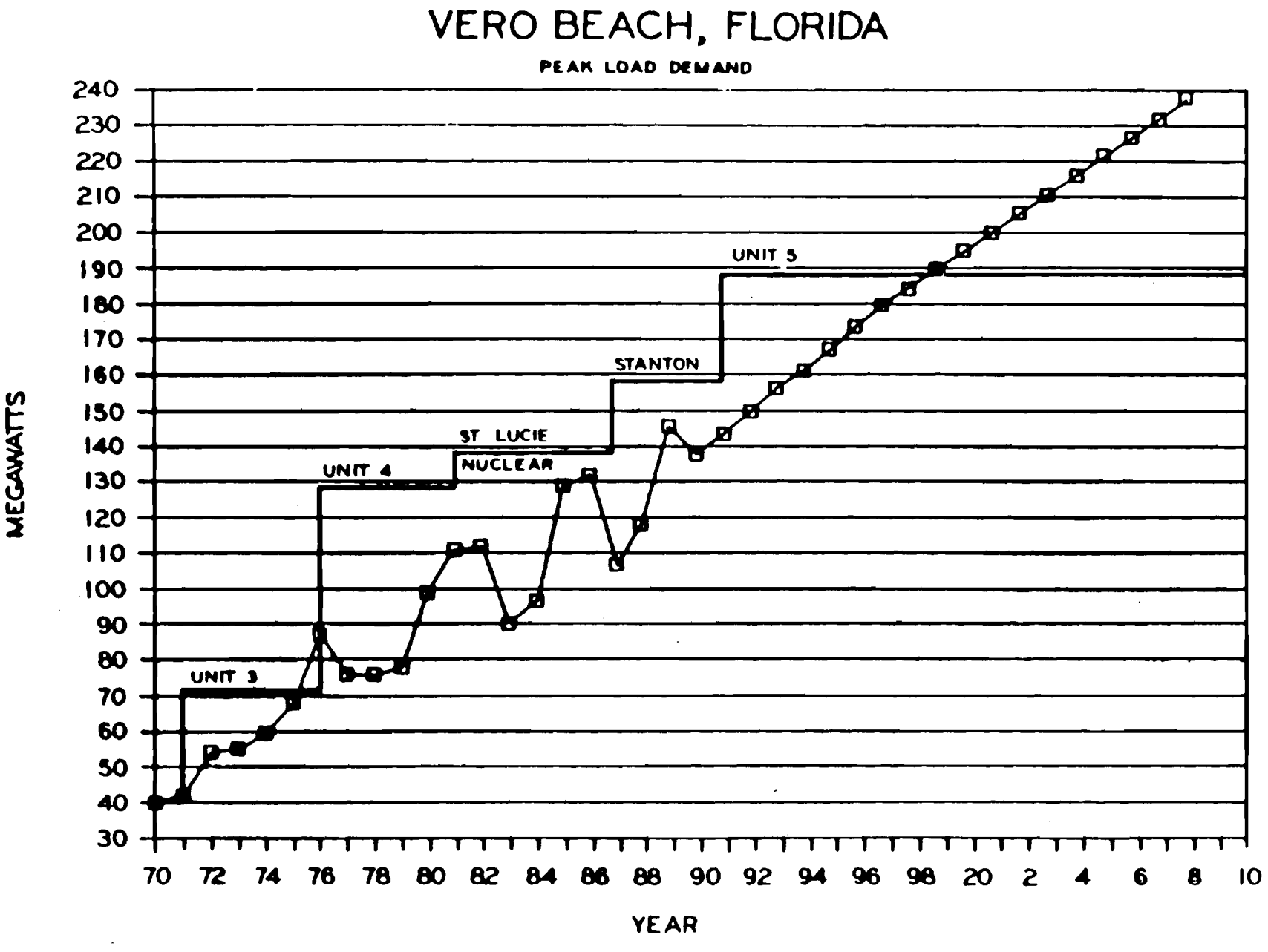


FIGURE 2

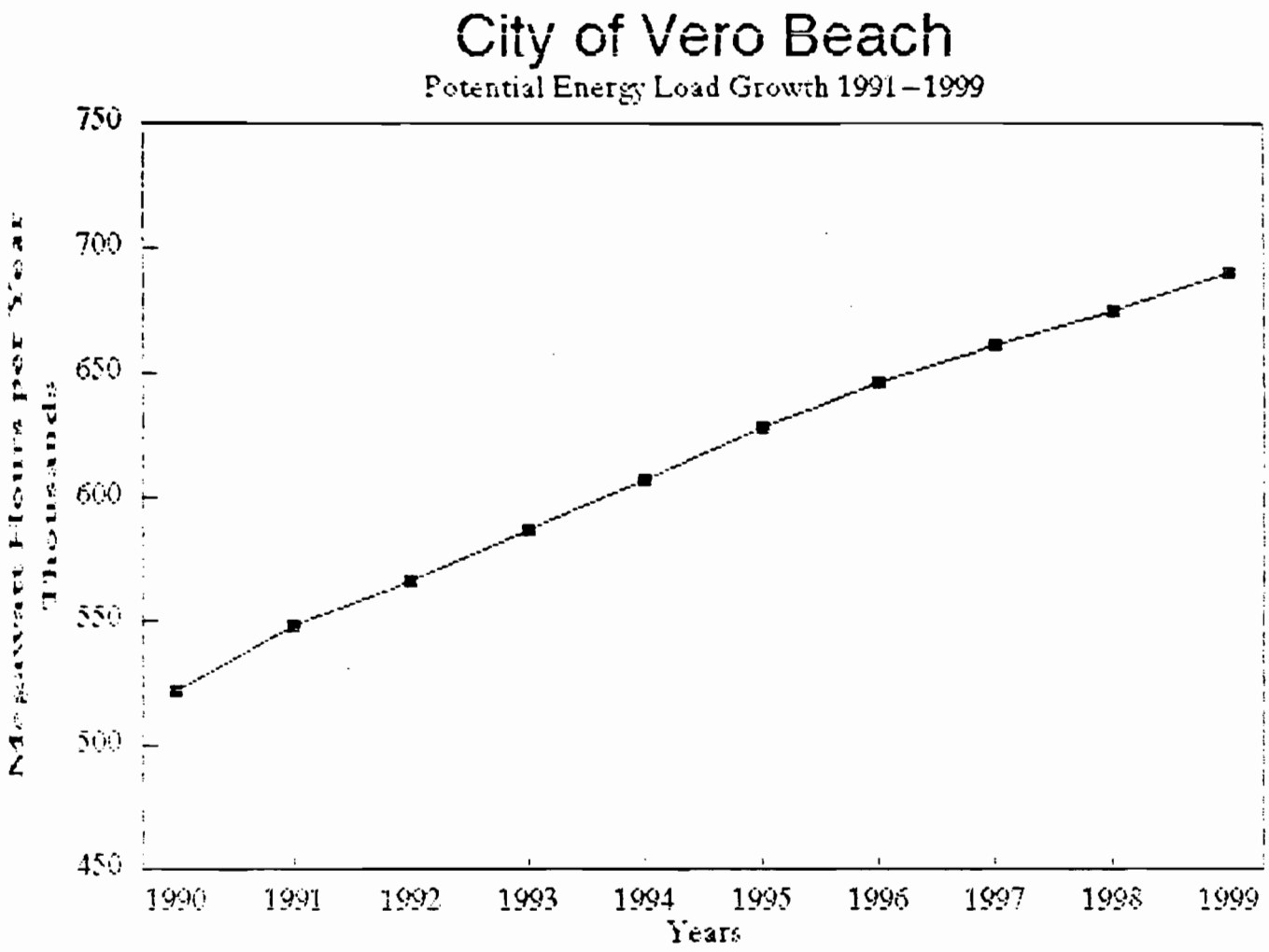
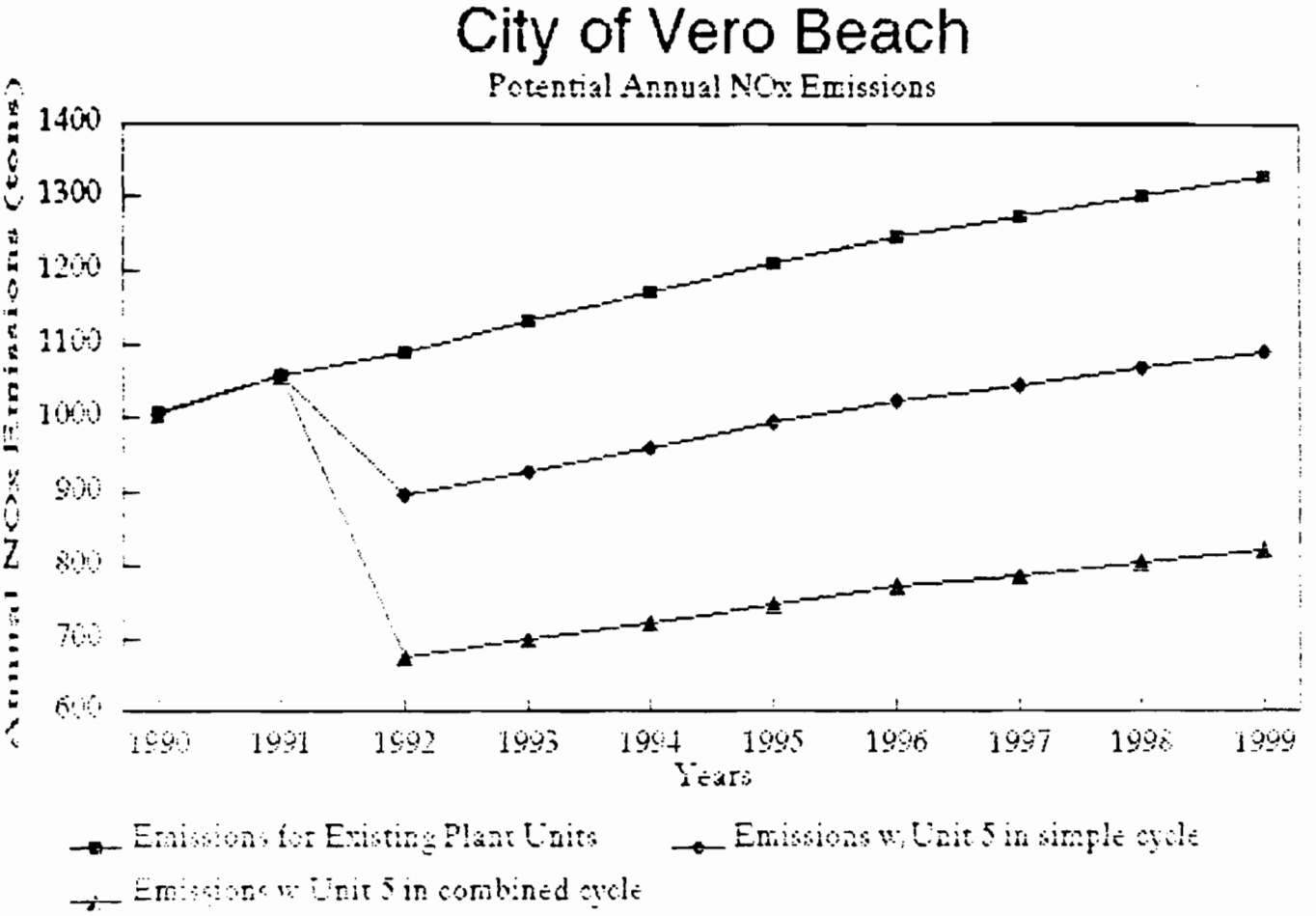


FIGURE 3



Based on Operations at the Vero Beach Plant Necessary to Meet Projected Load Growth

FIGURE 4

TABLE 1

CURRENT PERMITTED NOX EMISSION RATES
FULL PLANT CAPACITY

	NATURAL GAS					FUEL OIL			
Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions	Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h		MW	MBtu/h	kgal/h	lb/h
1	12.5	201.8	0.192	105.7	1	12.5	140.0	0.933	62.5
2	16.5	248.0	0.236	129.9	2	16.5	243.0	1.620	108.5
3	33.0	417.0	0.397	218.4	3	33.0	410.0	2.733	183.1
4	55.0	685.0	0.652	137.0	4	55.0	685.0	4.567	205.5
	117.0	1551.8	1.478	591.0		117.0	1478.0	9.853	559.7

Note: Potential NOx emission rates for Units 1-3 are based on AP-42 emission factors for natural gas and residual oil combustion.

Natural Gas - 550 lb/mcf (Table 1.4-1 Uncontrolled Emission Factors for Natural Gas Combustion)
No. 6 Fuel Oil - 67 lb/kgal (Table 1.3-1 Uncontrolled Emission Factors for Fuel Oil Combustion)

Potential NOx emission rate for Unit 4 are based on NSPS and permit conditions.

TABLE 2

PROPOSED NOX EMISSION RATES - FULL PLANT CAPACITY

Option 1 - Operating Unit 5 in simple cycle mode:

NATURAL GAS

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h
1	12.5	201.8	0.192	105.7
2	16.5	248.0	0.236	129.9
3	33.0	417.0	0.397	218.4
4	55.0	685.0	0.652	137.0
5	40.0	446.0	0.425	75.0
	157.0	1997.8	1.903	666.0

Increase from current NOx emission (lb/h): 75.0

FUEL OIL

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	kgal/h	lb/h
1	12.5	140.0	0.933	62.5
2	16.5	243.0	1.620	108.5
3	33.0	410.0	2.733	183.1
4	55.0	685.0	4.567	205.5
5	40.0	443.2	2.955	121.0
	157.0	1921.2	12.808	680.7

Increase from current NOx emission (lb/h): 121.0

TABLE 3

PROPOSED NOX EMISSION RATES - FULL PLANT CAPACITY

Option 2 - Operating Unit 5 in combined cycle mode (without SCR)

NATURAL GAS

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h
1	12.5	201.8	0.192	105.7
2	0.0	0.0	0.000	0.0
3	33.0	417.0	0.397	218.4
4	55.0	685.0	0.652	137.0
5	60.0	446.0	0.425	75.0
	160.5	1749.8	1.666	536.1

Increase from current NOx emission (lb/h): -54.9
Increase from simple cycle operation (lb/h): -129.9

FUEL OIL

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	kgal/h	lb/h
1	12.5	140.0	0.933	62.5
2	0.0	0.0	0.000	0.0
3	33.0	410.0	2.733	183.1
4	55.0	685.0	4.567	205.5
5	60.0	443.2	2.955	121.0
	160.5	1678.2	11.188	572.2

Increase from current NOx emission (lb/h): 12.5
Increase from simple cycle operation (lb/h): -108.5

TABLE 4

PROPOSED NOX EMISSION RATES - FULL PLANT CAPACITY

Option 3 Operating Unit 5 in combined cycle mode (with SCR)

	NATURAL GAS				FUEL OIL				
Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions	Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h		MW	MBtu/h	kgal/h	lb/h
1	12.5	201.8	0.192	105.7	1	12.5	140.0	0.933	62.5
2	0.0	0.0	0.000	0.0	2	0.0	0.0	0.000	0.0
3	33.0	417.0	0.397	218.4	3	33.0	410.0	2.733	183.1
4	55.0	685.0	0.652	137.0	4	55.0	685.0	4.567	205.5
5	60.0	446.0	0.425	15.0	5	60.0	443.2	2.955	42.5
	160.5	1749.8	1.666	476.1		160.5	1678.2	11.188	493.7
Increase from current NOx emission (lb/h):				-114.9	Increase from current NOx emission (lb/h):				-66.0
Increase from simple cycle operation (lb/h):				-189.9	Increase from simple cycle operation (lb/h):				-187.0
Increase from combined cycle operation without SCR (lb/h):				-60.0	Increase from combined cycle operation without SCR (lb/h):				-78.5

Note: Potential NOx emission rates for Unit 5 are based on BACT analysis provided in the PSD application.

TABLE 5

CURRENT PERMITTED NOX EMISSION RATES
BASE LOAD CAPACITY

	NATURAL GAS					FUEL OIL			
Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions	Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h		MW	MBtu/h	kgal/h	lb/h
1	0.0	0.0	0.000	0.0	1	0.0	0.0	0.000	0.0
2	0.0	0.0	0.000	0.0	2	0.0	0.0	0.000	0.0
3	0.0	0.0	0.000	0.0	3	0.0	0.0	0.000	0.0
4	55.0	685.0	0.652	137.0	4	55.0	685.0	4.567	205.5
	55.0	685.0	0.652	137.0		55.0	685.0	4.567	205.5

Note: Potential NOx emission rates for Units 1-3 are based on AP-42 emission factors for natural gas and residual oil combustion.

Natural Gas - 550 lb/mcf (Table 1.4-1 Uncontrolled Emission Factors for Natural Gas Combustion)
No. 6 Fuel Oil - 67 lb/kgal (Table 1.3-1 Uncontrolled Emission Factors for Fuel Oil Combustion)

Potential NOx emission rate for Unit 4 are based on NSPS and permit conditions.

TABLE 6

PROPOSED NOX EMISSION RATES - BASE LOAD CAPACITY

Option 1 - Operating Unit 5 in simple cycle mode:

NATURAL GAS

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h
1	0.0	0.0	0.000	0.0
2	16.5	248.0	0.236	129.9
3	0.0	0.0	0.000	0.0
4	0.0	0.0	0.000	0.0
5	40.0	446.0	0.425	75.0
	56.5	694.0	0.661	204.9

Increase from current NOx emission (lb/h): 67.9

FUEL OIL

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	kgal/h	lb/h
1	0.0	0.0	0.000	0.0
2	16.5	243.0	1.620	108.5
3	0.0	0.0	0.000	0.0
4	0.0	0.0	0.000	0.0
5	40.0	443.2	2.955	121.0
	56.5	686.2	4.575	229.5

Increase from current NOx emission (lb/h): 24.0

TABLE 7

PROPOSED NOX EMISSION RATES - BASE LOAD CAPACITY

Option 2 - Operating Unit 5 in combined cycle mode (without SCR)

NATURAL GAS

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h
1	0.0	0.0	0.000	0.0
2	0.0	0.0	0.000	0.0
3	0.0	0.0	0.000	0.0
4	0.0	0.0	0.000	0.0
5	60.0	446.0	0.425	75.0
	60.0	446.0	0.425	75.0

Increase from current NOx emission (lb/h): -62.0
Increase from simple cycle operation (lb/h): -129.9

FUEL OIL

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	kgal/h	lb/h
1	0.0	0.0	0.000	0.0
2	0.0	0.0	0.000	0.0
3	0.0	0.0	0.000	0.0
4	0.0	0.0	0.000	0.0
5	60.0	443.2	2.955	121.0
	60.0	443.2	2.955	121.0

Increase from current NOx emission (lb/h): -84.5
Increase from simple cycle operation (lb/h): -108.5

TABLE 8

PROPOSED NOX EMISSION RATES - BASE LOAD CAPACITY

Option 3 Operating Unit 5 in combined cycle mode (with SCR)

NATURAL GAS

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h
1	0.0	0.0	0.000	0.0
2	0.0	0.0	0.000	0.0
3	0.0	0.0	0.000	0.0
4	0.0	0.0	0.000	0.0
5	60.0	446.0	0.425	15.0
	60.0	446.0	0.425	15.0

Increase from current NOx emission (lb/h): -122.0
Increase from simple cycle operation (lb/h): -189.9
Increase from combined cycle operation without SCR (lb/h): -60.0

FUEL OIL

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	kgal/h	lb/h
1	0.0	0.0	0.000	0.0
2	0.0	0.0	0.000	0.0
3	0.0	0.0	0.000	0.0
4	0.0	0.0	0.000	0.0
5	60.0	443.2	2.955	42.5
	60.0	443.2	2.955	42.5

Increase from current NOx emission (lb/h): -163.0
Increase from simple cycle operation (lb/h): -187.0
Increase from combined cycle operation without SCR (lb/h): -78.5

Note: Potential NOx emission rates for Unit 5 are based on BACT analysis provided in the PSD application.

LOAD DISTRIBUTION AND NOx EMISSIONS - EXISTING PLANT CONFIGURATION

1990

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,057	13,207	105.7	55.8	14	181	62.5	0.5	56.3
2	16.5	1,559	25,719	129.9	101.2	21	352	108.5	1.2	102.4
3	33.0	3,533	116,579	218.4	385.8	48	1,594	183.1	4.4	390.2
4	55.0	6,550	360,276	137.0	448.7	90	4,925	205.5	9.2	457.9
		12,699	515,780		991.6	174	7,052		15.2	1,006.8

1991

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,109	13,848	105.7	58.5	15	189	62.5	0.5	59.0
2	16.5	1,634	26,962	129.9	106.1	22	369	108.5	1.2	107.3
3	33.0	3,704	122,231	218.4	404.4	51	1,671	183.1	4.6	409.1
4	55.0	5,869	322,703	137.0	470.4	94	5,164	205.5	9.6	480.1
		12,316	540,743		1,039.5	182	7,393		16.0	1,055.5

1992

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,144	14,305	105.7	60.5	15	196	62.5	0.5	61.0
2	16.5	1,688	27,857	129.9	109.7	23	381	108.5	1.3	110.9
3	33.0	3,826	126,274	218.4	417.9	52	1,727	183.1	4.8	422.6
4	55.0	7,095	390,238	137.0	486.0	97	5,336	205.5	10.0	496.0
		12,754	558,674		1,074.0	188	7,640		16.5	1,090.5

LOAD DISTRIBUTION AND NOx EMISSIONS - EXISTING PLANT CONFIGURATION

1993

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,186	14,829	105.7	62.7	16	203	62.5	0.5	63.2
2	16.5	1,750	28,877	129.9	113.7	24	395	108.5	1.3	115.0
3	33.0	3,967	130,897	218.4	433.2	54	1,790	183.1	5.0	438.1
4	55.0	7,355	404,525	137.0	503.8	101	5,531	205.5	10.3	514.2
		14,258	579,128		1,113.3	195	7,919		17.1	1,130.4

1994

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,228	15,353	105.7	64.9	17	210	62.5	0.5	65.4
2	16.5	1,811	29,892	129.9	117.7	25	409	108.5	1.3	119.0
3	33.0	4,104	135,447	218.4	448.4	56	1,853	183.1	5.1	463.5
4	55.0	7,617	418,749	137.0	521.5	104	5,725	205.5	10.7	532.2
		14,759	599,439		1,152.5	202	8,197		17.7	1,170.2

1995

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,265	15,868	105.7	67.1	17	217	62.5	0.5	67.6
2	16.5	1,873	30,901	129.9	121.6	26	423	108.5	1.4	123.0
3	33.0	4,245	140,071	218.4	463.5	58	1,916	183.1	5.3	468.8
4	55.0	7,874	432,876	137.0	539.1	108	5,919	205.5	11.1	550.2
		15,257	619,716		1,191.4	209	8,474		18.3	1,209.7

LOAD DISTRIBUTION AND NOx EMISSIONS - EXISTING PLANT CONFIGURATION

1996

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,307	16,333	105.7	69.1	18	223	62.5	0.6	69.6
2	16.5	1,529	31,806	129.9	125.2	26	435	108.5	1.4	126.6
3	33.0	4,369	144,175	218.4	477.1	60	1,972	183.1	5.5	482.6
4	55.0	8,101	445,559	137.0	554.9	111	6,092	205.5	11.4	566.3
		15,764	637,873		1,226.3	215	8,722		18.9	1,245.1

1997

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,336	16,694	105.7	70.6	19	228	62.5	0.6	71.2
2	16.5	1,970	39,510	129.9	128.0	27	445	108.5	1.5	129.4
3	33.0	4,468	147,363	218.4	487.6	61	2,015	183.1	5.6	493.2
4	55.0	8,289	455,410	137.0	567.2	113	6,227	205.5	11.6	578.9
		16,052	658,977		1,253.4	219	8,915		19.3	1,272.6

1998

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,364	17,053	105.7	72.1	19	233	62.5	0.6	72.7
2	16.5	2,013	33,207	129.9	130.7	28	454	108.5	1.5	132.2
3	33.0	4,561	150,526	218.4	498.1	62	2,058	183.1	5.7	503.8
4	55.0	8,459	465,185	137.0	579.4	116	6,360	205.5	11.9	591.2
		16,396	665,971		1,280.3	224	9,106		19.7	1,300.0

LOAD DISTRIBUTION AND NOx EMISSIONS - EXISTING PLANT CONFIGURATION

1999

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,394	17,421	105.7	73.7	19	239	62.5	0.6	74.3
2	16.5	2,056	33,925	129.9	133.5	28	464	108.5	1.5	135.1
3	33.0	4,660	153,781	218.4	508.9	64	2,103	183.1	5.8	514.7
4	55.0	8,641	475,244	137.0	591.9	118	6,498	205.5	12.1	604.0
		16,751	680,371		1,308.0	229	9,303		20.1	1,328.1

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (simple cycle mode)

1990

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,057	13,207	105.7	55.8	14	181	62.5	0.5	56.3
2	16.5	1,559	25,718	129.9	101.2	21	352	108.5	1.2	102.4
3	33.0	3,533	116,579	218.4	385.8	48	1,594	183.1	4.4	390.2
4	55.0	6,556	360,276	137.0	448.7	90	4,925	205.5	9.2	457.9
5	0.0	0	0	75.0	0.0	0	0	121.0	0.0	0.0
		12,699	515,780		991.6	174	7,052		15.2	1,006.8

1991

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,168	12,846	105.7	55.5	15	189	62.5	0.5	56.0
2	16.5	1,634	25,963	129.9	106.1	22	369	108.5	1.2	107.3
3	33.0	3,704	122,221	218.4	404.4	51	1,671	183.1	4.6	409.1
4	55.0	6,838	377,713	137.0	470.4	94	5,164	205.5	9.6	480.1
5	0.0	0	0	75.0	0.0	0	0	121.0	0.0	0.0
		13,313	543,743		1,039.5	182	7,393		16.0	1,055.5

1992

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	740	9,254	105.7	39.1	10	127	62.5	0.3	39.4
2	16.5	1,092	18,017	129.9	70.9	15	247	108.5	0.8	71.7
3	33.0	2,475	81,674	218.4	270.3	34	1,121	183.1	3.1	273.4
4	55.0	4,589	252,409	137.0	314.4	63	3,465	205.5	6.5	320.8
5	40.0	4,933	197,320	75.0	185.0	67	2,680	121.0	4.1	189.0
		12,829	558,674		879.7	189	7,640		14.8	894.4

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (simple cycle mode)

1993

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	767	9,593	105.7	40.6	11	132	62.5	0.3	40.9
2	16.5	1,132	18,677	129.9	72.5	16	256	108.5	0.8	74.4
3	33.0	2,566	84,664	218.4	280.2	35	1,162	183.1	3.2	283.4
4	55.0	4,757	261,659	137.0	325.9	65	3,592	205.5	6.7	332.6
5	40.0	5,114	204,544	75.0	191.8	69	2,778	121.0	4.2	196.0
		14,336	579,128		911.9	196	7,919		15.3	927.2

1994

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	754	9,930	105.7	42.0	11	136	62.5	0.3	42.3
2	16.5	1,172	19,333	129.9	76.1	16	265	108.5	0.9	77.0
3	33.0	2,656	87,639	218.4	290.0	36	1,203	183.1	3.3	293.3
4	55.0	4,924	270,845	137.0	337.3	68	3,718	205.5	6.9	344.3
5	40.0	5,293	211,732	75.0	198.5	72	2,875	121.0	4.3	202.9
		14,849	599,479		943.9	203	8,197		15.8	959.8

1995

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	821	10,265	105.7	43.4	11	141	62.5	0.4	43.8
2	16.5	1,211	19,936	129.9	78.7	17	274	108.5	0.9	79.6
3	33.0	2,745	90,598	218.4	299.8	38	1,243	183.1	3.4	303.2
4	55.0	5,091	279,988	137.0	348.7	70	3,843	205.5	7.2	355.9
5	40.0	5,472	218,880	75.0	205.2	74	2,973	121.0	4.5	209.7
		15,341	619,716		975.8	210	8,474		16.4	992.2

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (simple cycle mode)

1996

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	845	10,566	105.7	44.7	12	145	62.5	0.4	45.0
2	16.5	1,247	20,571	129.9	81.0	17	282	108.5	0.9	81.9
3	33.0	2,825	93,252	218.4	308.6	39	1,280	183.1	3.6	312.1
4	55.0	5,240	289,191	137.0	358.9	72	3,956	205.5	7.4	366.3
5	40.0	5,632	225,293	75.0	211.2	76	3,060	121.0	4.6	215.8
		15,790	637,873		1,004.4	216	8,722		16.9	1,021.2

1997

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	844	10,799	105.7	45.7	12	149	62.5	0.4	46.0
2	16.5	1,274	21,028	129.9	82.8	17	288	108.5	0.9	83.7
3	33.0	2,888	95,304	218.4	315.4	40	1,308	183.1	3.6	319.0
4	55.0	5,356	294,563	137.0	366.9	74	4,043	205.5	7.6	374.4
5	40.0	5,757	230,274	75.0	215.9	78	3,127	121.0	4.7	220.6
		16,119	651,977		1,026.6	221	8,915		17.2	1,043.8

1998

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	883	11,031	105.7	46.6	12	151	62.5	0.4	47.0
2	16.5	1,302	21,477	129.9	84.5	18	294	108.5	1.0	85.5
3	33.0	2,950	97,360	218.4	322.2	40	1,336	183.1	3.7	325.9
4	55.0	5,471	300,E86	137.0	374.7	75	4,130	205.5	7.7	382.5
5	40.0	5,880	235,217	75.0	220.5	80	3,194	121.0	4.8	225.3
		16,486	665,971		1,048.6	225	9,106		17.6	1,066.2

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (simple cycle mode)

1999

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	902	11,270	105.7	47.6	12	155	62.5	0.4	48.0
2	16.5	1,330	21,942	129.9	86.4	18	301	108.5	1.0	87.4
3	33.0	3,014	99,465	218.4	329.1	41	1,365	183.1	3.8	332.9
4	55.0	5,589	307,392	137.0	382.8	77	4,219	205.5	7.9	390.7
5	40.0	6,008	240,303	75.0	225.3	82	3,263	121.0	4.9	230.2
		16,842	681,371		1,071.3	230	9,303		18.0	1,089.3

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (combined cycle mode)

1990

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,057	13,207	105.7	55.8	14	181	62.5	0.5	56.3
2	16.5	1,559	25,718	129.9	101.2	21	352	108.5	1.2	102.4
3	33.0	3,533	116,579	218.4	385.8	48	1,594	183.1	4.4	390.2
4	55.0	6,550	360,276	137.0	448.7	90	4,925	205.5	9.2	457.9
5	0.0	0	0	75.0	0.0	0	0	121.0	0.0	0.0
		12,698	515,780		991.6	174	7,052		15.2	1,006.8

1991

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,108	13,846	105.7	58.5	15	189	62.5	0.5	59.0
2	16.5	1,634	26,963	129.9	106.1	22	369	108.5	1.2	107.3
3	33.0	3,704	122,221	218.4	404.4	51	1,671	183.1	4.6	409.1
4	55.0	6,868	377,713	137.0	470.4	94	5,164	205.5	9.6	480.1
5	0.0	0	0	75.0	0.0	0	0	121.0	0.0	0.0
		13,313	540,743		1,039.5	182	7,393		16.0	1,055.5

1992

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	566	7,080	105.7	29.9	8	98	62.5	0.2	30.2
2	20.0	4,933	98,660	0.0	0.0	67	1,340	0.0	0.0	0.0
3	33.0	1,894	62,492	218.4	206.8	26	861	183.1	2.4	209.2
4	55.0	3,511	193,122	137.0	240.5	48	2,661	205.5	5.0	245.5
5	40.0	4,933	197,320	75.0	185.0	67	2,680	121.0	4.1	189.0
		15,837	558,674		662.2	216	7,640		11.7	673.9

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (combined cycle mode)

1993

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	587	7,339	105.7	31.0	8	102	62.5	0.3	31.3
2	20.0	5,114	102,272	0.0	0.0	69	1,389	0.0	0.0	0.0
3	33.0	1,963	64,780	218.4	214.4	27	892	183.1	2.5	216.8
4	55.0	3,640	200,193	137.0	249.3	50	2,758	205.5	5.2	254.5
5	40.0	5,114	204,544	75.0	191.8	69	2,778	121.0	4.2	196.0
		16,417	579,128		686.5	224	7,919		12.1	698.6

1994

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	608	7,597	105.7	32.1	8	105	62.5	0.3	32.4
2	20.0	5,293	105,866	0.0	0.0	72	1,438	0.0	0.0	0.0
3	33.0	2,032	67,056	218.4	221.9	28	924	183.1	2.6	224.5
4	55.0	3,768	207,227	137.0	258.1	52	2,855	205.5	5.3	263.4
5	40.0	5,293	211,732	75.0	198.5	72	2,875	121.0	4.3	202.8
		16,994	599,479		710.6	232	8,197		12.5	723.1

1995

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	628	7,854	105.7	33.2	9	109	62.5	0.3	33.5
2	20.0	5,472	109,440	0.0	0.0	74	1,486	0.0	0.0	0.0
3	33.0	2,101	69,320	218.4	229.4	29	955	183.1	2.6	232.0
4	55.0	3,895	214,223	137.0	266.8	54	2,951	205.5	5.5	272.3
5	40.0	5,472	218,880	75.0	205.2	74	2,973	121.0	4.5	209.7
		17,568	619,716		734.6	240	8,474		12.9	747.5

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (combined cycle mode)

1996

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	647	8,084	105.7	34.2	9	112	62.5	0.3	34.5
2	20.0	5,632	112,646	0.0	0.0	76	1,530	0.0	0.0	0.0
3	33.0	2,162	71,351	218.4	236.1	30	983	183.1	2.7	238.8
4	55.0	4,009	220,499	137.0	274.6	55	3,038	205.5	5.7	280.3
5	40.0	5,632	225,293	75.0	211.2	76	3,060	121.0	4.6	215.8
		18,083	637,873		756.1	247	8,722		13.3	769.4

1997

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	661	8,262	105.7	34.9	9	114	62.5	0.3	35.2
2	20.0	5,757	115,137	0.0	0.0	78	1,564	0.0	0.0	0.0
3	33.0	2,210	72,929	218.4	241.3	30	1,005	183.1	2.8	244.1
4	55.0	4,098	225,375	137.0	280.7	56	3,105	205.5	5.8	286.5
5	40.0	5,757	230,274	75.0	215.9	78	3,127	121.0	4.7	220.6
		18,482	651,977		772.8	252	8,915		13.6	786.4

1998

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	675	8,440	105.7	35.7	9	117	62.5	0.3	36.0
2	20.0	5,880	117,608	0.0	0.0	80	1,597	0.0	0.0	0.0
3	33.0	2,257	74,494	218.4	246.5	31	1,026	183.1	2.8	249.4
4	55.0	4,186	230,212	137.0	286.7	58	3,172	205.5	5.9	292.6
5	40.0	5,860	235,217	75.0	220.5	80	3,194	121.0	4.8	225.3
		18,879	665,971		789.4	258	9,106		13.9	803.3

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (combined cycle mode)

1999

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	690	8,622	105.7	36.5	10	119	62.5	0.3	36.8
2	20.0	6,008	120,151	0.0	0.0	82	1,632	0.0	0.0	0.0
3	33.0	2,306	76,105	218.4	251.8	32	1,048	183.1	2.9	254.7
4	55.0	4,276	235,190	137.0	292.9	59	3,240	205.5	6.1	299.0
5	40.0	6,00E	240,303	75.0	225.3	82	3,263	121.0	4.9	230.2
		19,287	680,371		806.5	263	9,303		14.2	820.7

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

RECEIVED
FEB 14 1991
DER BAQM

CITY OF VERO BEACH, FLORIDA Petitioner, vs. STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL REGULATION, Respondent.	)	CASE NO. _____

PETITION FOR FORMAL ADMINISTRATIVE PROCEEDINGS

Petitioner, City of Vero Beach, Florida, ("City" or "Petitioner"), by and through its undersigned counsel, hereby files this petition for formal administrative proceedings pursuant to Section 120.57(1) and Chapter 403, Florida Statutes, and Titles 17 and 28, Florida Administrative Code, in order to challenge certain construction permit conditions set forth in the Department of Environmental Regulation's ("DER" or "Respondent") December 21, 1990 Notice of Intent to Issue Permit. In support of this Petition, the City states:

IDENTIFICATION OF PARTIES

1. The name, address, and telephone number of the Petitioner is City of Vero Beach, Florida, Vero Beach Municipal Power Plant, Post Office Box 1389, Vero Beach, Florida, 32961-1389, 407/567-5151.

2. The name and address of the Respondent is State of Florida, Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

RESPONDENT'S FILE NUMBER AND COUNTY

3. DER has assigned File Nos. AC 31-184928 and PSD-FL-152 to this matter. This Petition relates to a DER air pollution source construction permit for a proposed sixty (60) megawatt (MW) combined cycle turbine system to be constructed at the existing Municipal Power Plant in Vero Beach, Indian River County, Florida. The City proposes to repower existing Unit 2 by installing a new 40 MW combustion turbine and a new heat recovery steam generator (HRSG) to be used in conjunction with an existing 20 MW steam turbine electric generator.

RECEIPT OF NOTICE OF AGENCY ACTION

4. The City of Vero Beach received DER's Intent to Issue Permit by U.S. Mail on or about December 27, 1990. By order dated January 24, 1991, DER extended the time for initiating administrative proceedings to and including February 14, 1991.

SUBSTANTIAL INTERESTS AFFECTED

5. The City of Vero Beach currently operates four natural gas and fuel oil fired steam turbine units, totaling 117 MW of electric power, at the existing Vero Beach Municipal Power Plant. The City has applied to DER for an

air pollution source construction permit to authorize the installation of a new 40 MW combustion turbine and new HRSG in order to repower the existing Unit 2 steam turbine electric generator. Certain conditions contained in the DER construction permit for the proposed facility are unreasonable and unnecessary under Chapter 403, Florida Statutes, and inconsistent with the rules promulgated thereunder. These conditions would without justification require the City to install and operate selective catalytic reduction (SCR) devices to control nitrogen oxide (NO_x) emissions from the repowered unit. Installation of an SCR system would expose the City of Vero Beach to excessive construction costs, as well as substantially increased operating costs. Therefore, the Intent to Issue Permit substantially and detrimentally impacts the City of Vero Beach and its electric customers.

DISPUTED ISSUES OF MATERIAL FACT

6. The disputed issues of material fact involve the NO_x emission limitations proposed by DER as best available control technology ("BACT") in the construction permit. DER's BACT determination, as currently proposed, is arbitrary and capricious. Specific issues of material fact include whether DER, in formulating NO_x BACT limitations applicable to the proposed combined cycle unit:

a. Is improperly and insufficiently accounting for energy, environmental and economic impacts;

b. Is acting in a manner that is not uniform and consistent with its previous actions on similar or analogous applications;

c. Has not articulated and is incapable of articulating facts and circumstances that justify any incipient agency policy embodied in the Intent to Issue Permit;

d. Is deviating from the Department's validly promulgated rules relating to BACT determination; and

e. Is improperly applying a statement of general applicability that implements, interprets or prescribes law or policy, without complying with applicable rulemaking procedures.

FACTS

7. The City of Vero Beach currently operates the Vero Beach Municipal Power Plant in Vero Beach, Indian River County, just east U.S. 1 and west of the Indian River. The existing plant consists of four natural gas and fuel oil fired steam turbine units, totaling 117 MW of electric power. Facilities at the plant site currently include the building housing the four existing turbine units, three fuel oil storage tanks, an electrical substation, and ancillary facilities.

8. On or about July 27, 1990, the City of Vero Beach submitted to DER an application for an air construction permit that would authorize construction of a sixty (60) MW combined cycle unit at the existing plant site. The City proposes to repower existing Unit 2 by installing a new 40 MW combustion turbine and new HRSG, which will be used in conjunction with an existing 20 MW steam turbine electric generator. The installation of the new combustion turbine will increase the City's electric generating capability by 40 MW. The new HRSG will provide more efficient generation than the existing natural gas and oil fired boiler that currently provides steam to the existing 20 MW turbine generator. The resulting combined cycle unit will burn natural gas as the primary fuel and No. 2 fuel oil as a backup fuel.

9. When operating in the simple cycle mode, the proposed unit will result in an increase in potential emissions of various regulated air pollutants from the existing power plant facilities. The United States Environmental Protection Agency ("EPA") and DER have promulgated regulations that require prevention of significant deterioration ("PSD") review in conjunction with modifications of existing sources that increase potential air emissions above specified threshold amounts. The City's application is subject to PSD review.

10. EPA's PSD regulations are found at 40 CFR §§51.166 and 52.21; the PSD program is administered by DER through Florida's EPA-approved State Implementation Plan, which is comprised of applicable portions of Chapter 17-2, Florida Administrative Code. DER's PSD regulations are codified at Florida Administrative Code Rule 17-2.500. These regulations require application of BACT, a term that is defined by Rule 17-2.100(28) as follows:

> An emission limitation, including a visible emissions standard, based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of each such pollutant.

In addition to the factors specified in the above quoted definition, DER must consider the following in determining BACT:

> (a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to Section 169 [of the Clean Air Act], and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).
>
> (b) All scientific, engineering, and technical material and other information available to the Department.
>
> (c) The emission limiting standards or BACT determinations of any other state.
>
> (d) The social and economic impact of the application of such technology.

§17-2.630(1), Florida Administrative Code.

11. Technical information and analyses required by the PSD regulations was set forth in the Ambient Air Quality Impact Analysis (AAQIA) attached to the City's application. Information pertaining to control technology review, and BACT, was set forth in Section 6 of the AAQIA.

12. Although DER has responsibility for making BACT determinations in Florida, EPA typically comments upon and participates informally in the process. In December, 1978, EPA published Guidelines for the Evaluation of BACT to assist states in rendering BACT determinations. The BACT evaluation process suggested by the 1978 guidelines generally provided for appropriate consideration of the factors specified in DER's definition of BACT in Rule 17-2.100(28), F.A.C. Until at least 1987, DER applied this approach in all BACT determinations in the State of Florida.

13. Late in 1987, EPA issued a memorandum advocating a so-called "top-down" approach to BACT determinations. [EPA Memorandum from J. Potter (Assistant Administrator for Air and Radiation) to Regional Administrators, "Improving New Source Review (NSR) Implementation," December 1, 1987] This memorandum reflects a significant shift in EPA policy in that it fails to provide for adequate case-by-case consideration of energy, environmental and economic impacts as required by DER's Rule 17-2.100(28), F.A.C. Instead, this new top-down approach requires that deliberations begin with the most stringent limitation that has been applied to

the same source category. The BACT determination must reflect this limitation unless there are specific facts warranting its rejection, such as site-specific technical or economic infeasibility. In effect, the "top down" approach shifts the burden of proof to the applicant to justify why the proposed source is unable to apply the most stringent technology available. In March, 1990, EPA made available a "draft" top-down BACT guidance document, which provided additional guidance on implementation of this new policy. [EPA Office of Air Quality Planning and Standards, "Top-Down" Best Available Control Technology Guidance Document, March 15, 1990]

14. Since EPA issued the 1987 memorandum advocating the "top down" BACT policy, DER has applied this new approach in virtually all, if not all, BACT determinations in the State of Florida. Because this new policy fails to provide for adequate consideration of the energy, environmental and economic factors specified in DER's definition of BACT, the "top down" approach is inconsistent with Rule 17-2.100(28), F.A.C.

15. Even using this "top-down" approach, DER has not previously imposed an emission limitation requiring the use of SCR as BACT for NO_x in its BACT determinations for any electrical generating facility. DER has failed to articulate any factors to justify the inconsistent treatment proposed for the City's electrical generating facility.

16. In the AAQIA accompanying its permit application, the City proposed that BACT for NO_x emissions from the proposed combined cycle unit is the use of water injection necessary to limit emissions to 42 ppmvd or 65 ppmvd (at 15% oxygen) when burning natural gas or No. 2 fuel oil, respectively. The City rejected SCR as BACT for NO_x because of site-specific energy, environmental, and economic concerns. First, the City noted that the energy requirements of an SCR system would reduce the energy output of the combustion turbines by approximately one percent. The City also identified potential adverse environmental impacts of SCR which would require on-site storage and handling of ammonia, and could result in emissions of particulate ammonia sulfate compounds and potentially hazardous unreacted ammonia. In addition, SCR would require periodic replacement of catalytic elements, which could require implementation of hazardous waste disposal procedures. Moreover, installation and use of an SCR system would have a significant economic impact on the project. In the AAQIA, the City noted that installation and operation of SCR would increase total costs for the project by $790,000 per year, resulting in an incremental cost of $3,050 per ton of NO_x removed while burning natural gas and $2,290 per ton of NO_x removed while burning No. 2 fuel oil.

17. Due to these significant energy, environmental, and economic considerations, the City asserts that BACT for NO_x

should be based upon water injection under either the approach to BACT recommended in EPA's 1978 guidelines and previously employed by DER, or the "top down" approach currently recommended by EPA.

18. Since submitting its construction permit application for the proposed combined cycle unit, the City has performed a refined economic analysis which establishes the incremental cost of SCR to be approximately $4,500 to $4,700 per ton of NO_x removed depending on whether the unit is firing natural gas or No. 2 fuel oil.

19. The City of Vero Beach received DER's Intent to Issue Permit on or about December 27, 1990. In the accompanying Technical Evaluation and Preliminary Determination, BACT Determination, and construction permit, DER used the new "top down" approach to preliminarily determine that BACT for NO_x during combined cycle operation would be the use of SCR to achieve an emission rate of 9 ppmvd or 25 ppmvd (at 15% oxygen) when firing natural gas or No. 2 fuel oil, respectively.

20. Under the draft permit proposed by DER, the NO_x emission limitations for simple cycle operation of the combustion turbine are in agreement with that requested by the City. When the unit operates in the simple cycle mode, SCR may be bypassed and the NO_x emission limits become 42 ppmvd and 65 ppmvd for natural gas and No. 2 fuel oil, respectively. Since no additional fuel is burned when the

HRSG is operated in conjunction with the combustion turbine, total NO_x emissions from the combined cycle mode would not exceed emissions produced under simple cycle operation. Nevertheless, DER preliminarily established more stringent NO_x emission limits (9 ppmvd and 25 ppmvd for natural gas and oil, respectively) for combined cycle operation. Consequently, the City would be forced to install an expensive SCR system for the combined cycle unit, or to restrict operation of the combustion turbine to the less efficient simple cycle mode.

21. In setting the NO_x emission limitations for the combined cycle unit, DER has failed to consider adequately energy, environmental, and economic concerns related to the installation and use of SCR at the Vero Beach facility. DER failed to consider emission reductions resulting from the use of the new HRSG to provide steam to the existing 20 MW turbine generator during combined cycle operation. DER cannot point to any qualitative or quantitative environmental benefits that would justify the adverse energy, environmental, and economic impacts associated with the installation and use of SCR at the Vero Beach Municipal Power Plant. Moreover, DER improperly deviated from the Department's rules relating to BACT determinations, by failing to apply a case-by-case analysis of energy, environmental, and economic impacts.

FACTS REQUIRING MODIFICATION OR REVERSAL OF THE DEPARTMENT'S ACTION

22. Facts requiring modification or reversal of the Department's BACT determination are as follows:

a. DER has improperly and insufficiently accounted for energy, economic, and environmental impacts;

b. DER has not acted in a manner that is uniform and consistent with its previous actions on similar or analogous applications;

c. DER has not articulated and cannot articulate facts and circumstances that justify any incipient policy embodied in the Intent to Issue Permit and related documents;

d. DER has improperly deviated from its validly promulgated rules relating to BACT determinations;

e. DER has applied the new "top down" approach to BACT determinations on an industry-wide basis in a manner that is inconsistent with Rule 17-2.100(28), F.A.C., and without promulgating the policy through applicable rulemaking procedures; and

f. The City of Vero Beach's proposal is reasonable and comports with applicable regulations.

LAWS ENTITLING PETITIONER TO RELIEF

23. The laws entitling City of Vero Beach to relief in this action include the Clean Air Act (42 U.S.C. §§7401, et seq.); 40 CFR §§51.166 and 52.21; Chapters 120 and 403, Florida Statutes; Titles 17, 22I and 28, Florida Administrative Code; and the United States and State of Florida Constitutions.

RELIEF SOUGHT

24. The City of Vero Beach hereby requests the Florida Department of Environmental Regulation to issue a Permit to Construct the combustion turbine project at the City of Vero Beach Municipal Power Plant in accordance with the City's proposal. The City requests that the NO_x emission limits (in Table 1, Specific Condition 1 of the proposed permit) in the final permit be revised from 9 ppmvd to 42 ppmvd at 15% oxygen on a dry basis during natural gas firing, and from 25 ppmvd to 65 ppmvd at 15% oxygen on a dry basis during No. 2 fuel oil firing.

Respectfully submitted this 14th day of February, 1991.

HOPPING BOYD GREEN & SAMS

By: _____

Peter C. Cunningham
Richard D. Melson
Gary V. Perko
Post Office Box 6526
Tallahassee, FL 32314
(904) 222-7500

Attorneys for City of Vero Beach, Florida

CERTIFICATE OF SERVICE

I DO HEREBY CERTIFY that the original and one copy of the foregoing petition was filed by hand delivery with the Department of Environmental Regulation, Office of General Counsel, and that a copy thereof was served by hand delivery this 14th day of February, 1991, on the following:

Douglas MacLaughlin
Office of General Counsel
Department of Environmental Regulation
2600 Blair Stone Road, Room 654
Tallahassee, FL 32399-2400

Richard O. Mays
Attorney

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

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RECEIVED
DEC 03 1990
DER - BAQM

4APT-AEB

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Vero Beach Municipal Power Plant (PSD-FL-152)
Vero Beach, Florida

Dear Mr. Fancy:

This is to acknowledge receipt of the above referenced facility's application for a prevention of significant deterioration (PSD) construction permit, transmitted by your letter dated October 7, 1990. As discussed between Mr. Barry Andrews of FDER and Ahmed Amanulah of my staff on October 30, 1990, we have the following comments regarding this application.

Vero Beach is proposing to construct a 58 MW combined cycle power plant with its own heat recovery system. This combined cycle power plant is projected to burn natural gas as the primary fuel and No. 2 fuel oil as an alternate fuel.

Our major point of concern is in regards to the BACT determination for NO_x. The applicant proposed wet injection as the control technology for NO_x, rejecting the use of Selective Catalytic Reduction (SCR). The basis for rejection, according to the applicant, was significant adverse energy, economic and environmental impacts.

The major environmental concerns raised by the applicant appear to be the possibility of ammonia slip, the possibility of the formation of SO_3 and ammonium bisulfate, the deactivation of the catalyst due to plugging from sulfur oxides, and the disposal problems related to changing out any vanadium pentoxide catalysts - a hazardous waste under RCRA regulations. What the applicant fails to point out, however, is that there are SCR systems on the market which do not use vanadium pentoxide, or any other metal, as a catalyst. For example, one SCR system makes use of a ceramic molecular sieve to promote the reaction. The ceramic catalyst system has been applied on gas

turbines and diesel engines. The system does not promote the conversion of SO_2 to SO_3 and has virtually no catalyst poisoning, plugging or masking problems. The ammonia slip is also limited. In addition, the catalyst is not considered a hazardous waste.

The energy impacts described by the applicant are not those which would put a strain on the local energy supply or which appear to be significantly different than typical plant energy usage.

The applicant's argument regarding the adverse effects of SCR usage while firing #2 fuel oil also appears to be unjustified. We have contacted other Regions where similar types of combustion turbines are currently operating with SCR controls. Most of these turbines use natural gas as the primary fuel and No. 2 fuel oil as a backup fuel.

Information from Region I also indicates that a SCR system is continuously being utilized, even while the turbine fires oil.

Also, a feasibility study by the Stationary Source Committee of the Northeast States for Coordinated Air Use Management (NESCAUM) on emission limits for gas turbines (October 1988) revealed that sulfur containing fuels could present somewhat of a problem in promoting the use of SCR in the Northeast. However, information recently obtained from Japan and Europe show that as of April 1986, SCR experience extends back eight and a half years on oil-fired boilers, eight years on gas, and six and a half on coal. Japan currently has at least 22 SCR units for coal-fired boilers, 55 SCR units for oil-fired boilers, and 13 SCR units for liquid natural gas (LNG) boilers. In general, figures show that with coal, SCR catalyst life is 2-3 years; 4-7 years with oil; and with LNG or gas, catalyst life is in excess of 6 years. During the initial installations of SCR units, NO_x reductions averaged 30 percent. With operating experience, more recent installations show reductions in most cases of 70-80%.

In any case, the justifications presented by the applicant for rejecting SCR as a control technology do not appear to be convincing. There are SCR technologies on the market which do not have a hazardous waste by-product. SCR has been applied in the United States on gas and fuel oil fired turbines and diesel engines. It would seem, then, that technical feasibility is not an issue, and, achieving a lower NO_x emission limit than the proposed 42 ppm and 65 ppm for a combined cycle unit is reasonable.

Thank you for the opportunity to review this package before the preliminary determination. If you have any questions regarding these comments, please contact Mr. Ahmed Amanulah of my staff at (404) 347-2904.

Sincerely yours,

Douglas Neeley for

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

cc: Shuler W. Massey
Director of Power Resources
Vero Beach Municipal Power Plant
Vero Beach, Florida 32961-1389

B. Andrews
D. Heron
C. Halladay
C. Collins

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 562-7231

MUNICIPAL POWER PLANT

January 2, 1991

Mr. C. H. Fancy, P.E.
Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

Please find enclosed the proof of publication as set forth in the INTENT TO ISSUE received with your letter of December 21, 1990.

If you have any questions or comments, I am available at your convenience.

Very truly yours,

Shuler W. Massey
Director of Power Resources

SWM/js

attachments

mail certified P 254 195 041

xc: Mr. Barry Andres, DER
Lloyd Wade Sherrill, P.E.
J. Heron
C. Holloway
G. Harper, EPA
A. Collins, C Dist

RECEIVED
JAN 4 1991
DER - BAQM

VERO BEACH PRESS-JOURNAL

Published Daily

Vero Beach, Indian River County, Florida

COUNTY OF INDIAN RIVER: STATE OF FLORIDA

Before the undersigned authority personally appeared J. J. Schumann, Jr. who on oath says that he is Business Manager of the Vero Beach Press-Journal, a daily newspaper published at Vero Beach in Indian River County, Florida; that the attached copy of advertisement, being

a Notice

in the matter of Intent to Issue

in the Court, was published in said newspaper in the issues of January 2, 1991

Affiant further says that the said Vero Beach Press-Journal is a newspaper published at Vero Beach, in said Indian River County, Florida, and that the said newspaper has heretofore been continuously published in said Indian River County, Florida, each daily and has been entered as second class mail matter at the post office in Vero Beach, in said Indian River County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Sworn to and subscribed before me this 2nd day of January 19 91

John J. Schumann Jr.

(Business Manager)

(Clerk of the Circuit Court, Indian River County, Florida)

(SEAL)

State of Florida
Department of Environmental Regulation
Notice of Intent to Issue

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit to Vero Beach Municipal Power Plant, 100 - 17th Street, Vero Beach, Indian River County, Florida 32961-1389, to construct and operate a 60 MW combined cycle gas turbine system. A determination of Best Available Control Technology (BACT) was required. The maximum degree of increment consumed for nitrogen dioxide is 2.0% of the Class II proposed annual mean. For sulfur dioxide, the maximum consumption is also 2.0%. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modfication of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and,

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application is available for public inspection during business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:
Department of Environmental Reggulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Department of Environmental Regulation
Central District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Barry Andrews at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination. Furthermore, a public hearing can be requested by any person. Such requests must be submitted within 30 days of this notice.

Jan. 2, 1991 755647

HOPPING BOYD GREEN & SAMS
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32314
(904) 222-7500
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ROBERT P. SMITH, JR.

KATHLEEN BLIZZARD
RICHARD W. MOORE
ANGELA R. MORRISON
MARIBEL N. NICHOLSON
DIANA M. PARKER
LAURA BOYD PEARCE
GARY V. PERKO
MICHAEL P. PETROVICH
DAVID L. POWELL
DOUGLAS S. ROBERTS
CECELIA C. SMITH
CHERYL G. STUART

OF COUNSEL
W. ROBERT FOKES

January 10, 1991

BY HAND DELIVERY

Carol M. Browner, Secretary
c/o Office of General Counsel
Florida Department of Environmental
Regulation
2600 Blair Stone Road, Room 654
Tallahassee, Florida 32399-2400

Re: City of Vero Beach Municipal Power Plant
Combined Cycle Gas Turbine System
Permit No. AC 31-184928
PSD-FL-152

Dear Secretary Browner:

On December 27, 1990, the City of Vero Beach received notice of the Department's Intent to Issue permit No. AC 31-184928 (PSD-FL-152) for a proposed sixty megawatt combined cycle gas turbine system to be constructed at the existing Municipal Power Plant in Vero Beach, Indian River County, Florida. The Notice of Intent, and the accompanying Technical Evaluation and Preliminary Determination, were issued by the Bureau of Air Regulation in the Department's Division of Air Resources Management. Pursuant to Florida Administrative Code Rule 17-103.155, the City of Vero Beach has until January 10, 1991 to file a petition for administrative proceedings regarding the Department's proposed action on this permit.

I am writing on behalf of the City of Vero beach to request an extension of thirty-five (35) days, to and including February 14, 1991, in which to file a petition for administrative proceedings regarding the permit. This

request is made pursuant to Florida Administrative Code Rule 17-103.070, which provides that a timely request for extension of time shall toll the running of the period in which to file an appropriate petition. As good cause for granting the requested extension of time for filing, the City of Vero Beach would show the following:

1. The proposed permit contains twenty-four (24) specific conditions, including prescribed emission limits for a number of air pollutants based upon the Department's preliminary determination of "Best Available Control Technology".

2. The emission limits for nitrogen oxides proposed in the permit are significantly more stringent than those which the City of Vero Beach believes reflect Best Available Control Technology in this case.

3. The Best Available Control Technology determination for nitrogen oxides involves consideration of technical, economic, energy and environmental factors.

4. Undersigned counsel has very recently been retained to represent the City of Vero Beach in this matter, and additional time is needed to allow review of pertinent documents.

5. Representatives of the City of Vero beach intend to initiate discussions with Department staff regarding the proposed permit in the near future.

6. This request is filed as a protective measure to avoid waiver of the City of Vero Beach's right to challenge the Department's proposed action as set forth in the Notice of Intent and the Technical Evaluation and Preliminary Determination. Grant of the request will allow the parties an opportunity to discuss the matters in dispute with the potential for achieving a mutually acceptable resolution without the initiation of formal administrative proceedings.

I hereby certify that I have spoken with Carol Forthman, Deputy General Counsel for the Department, and that she is in agreement with the grant of this request.

Accordingly, I respectfully request that you issue an order formally extending the time for filing of a petition

for administrative proceedings regarding the Department's proposed air permit No. AC 31-184928 (PSD-FL-152) to and including February 14, 1991.

Respectfully submitted,

Hopping Boyd Green & Sams

Peter C. Cunningham

Counsel for the
City of Vero Beach

VBExtReq:gbb

cc: Carol Forthman, Esquire
Douglas MacLaughlin, Esquire
Clair Fancy
J. Heron
B. Andrews
C. Holladay
C. Collins

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

RECEIVED
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DER-BAQM

4APT-AEB

JAN 28 1991

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Vero Beach Municipal Power Plant (PSD-FL-152)

Dear Mr. Fancy:

This is to acknowledge receipt of the preliminary determination and draft permit for the above referenced facility dated December 21, 1990. As discussed between Mr. Barry Andrews of your staff and Mr. Gregg Worley of my staff on January 17, 1991, we have reviewed the package and have the following comment.

We concur with FDER's determination that the application of selective catalytic reduction is appropriate as best available control technology for the 60 MW combined cycle turbine of this project. The draft permit allows the SCR system to be bypassed when the turbine is operating in the simple cycle mode. In order to be consistent with recent determinations in Region IV concerning simple cycle turbines, we feel that the hours of operation in the simple cycle mode should be limited even though common sense would dictate that for energy efficiency and economic reasons, the source would want to operate in the combined cycle mode as much as possible.

Thank you for the opportunity to review and comment on this package and for addressing our earlier concerns. If you have any questions or comments, please contact Mr. Gregg Worley of my staff at (404) 347-2904.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics Management Division

cc: Mr. Shuler W. Massey
Vero Beach Municipal Power Plant
P.O. Box 1389
Vero Beach, Florida 32961-1389

D. Heron
B. Andrews
C. Holladay
C. Collins, C Dist.
CHE

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary

FAX TRANSMITTAL LETTER

DATE: 10 January 1991

TO:

NAME: Chris Wikle

AGENCY: Black + Veatch

TELEPHONE: 913-339-2934

OF PAGES (INCLUDE COVER SHEET): 2

FROM:

NAME: Cleve Holladay

AGENCY: Dept of Environmental Regulation, State of Florida

IF ANY PAGES ARE NOT CLEARLY RECEIVED, PLEASE CALL IMMEDIATELY. PHONE NO. 904-488-1344

SENDER'S NAME: Cleve Holladay

COMMENTS:

MESSAGE CONFIRMATION

JAN-10-'91 THU 15:34

TERM ID: DIV OF AIR RES MGMT P-9999

TEL NO: 904-922-6979

	DATE	ST.TIME	TOTAL TIME	ID	DEPT CODE	OK	NG
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for both SO_2 and PM(TSP). The baseline date for NO_2 for the entire state is March 28, 1988.

2.2.5 BASELINE EMISSIONS

Baseline related provisions of the PSD regulations are contained in Chapter 17-2.500(4)(b), F.A.C. These rules provide requirements for establishment of baseline emissions. In general, the regulations provide that any changes in actual SO_2 or PM(TSP) emissions at a major facility that result from a physical change or change in the method of operation that occurred after January 6, 1975, affect PSD increment consumption (i.e., increases consume increment, and decreases expand the available increments). All changes in actual emissions at all facilities after the minor source baseline date of December 27, 1977, similarly affect PSD increment consumption. In addition, the allowable emissions from facilities (or sources located within facilities) that commenced construction prior to January 6, 1975, but were not operating as of January 6, 1975, are to be included in the baseline emissions and reflected in the baseline concentration. The January 6, 1975, date is termed the "major source baseline date" for SO_2 and PM(TSP) emissions.

CCA was an existing facility as of January 6, 1975, so all changes in actual emissions at the facility caused by a physical change or change in the method of operation that occurred after this date affect the available PSD increments. Other changes in actual emissions after December 27, 1977, also affect the increments. In essence, CCA's effect on SO_2 and PM(TSP) increment consumption is based on the mill's actual emissions as of January 6, 1975, and the mill's future maximum emissions.

NO_2 increment consumption is determined in a similar manner, except that the major source baseline date for NO_2 is March 28, 1988.

FAX to Chris Wikle

913-339-2934

SM: P-254-195-015
9-28-90: Vero Beach, FL

PSD-FL-152
AC 31-184928
Chem

BLACK & VEATCH

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 339-2000

City of Vero Beach, Florida
Combustion Turbine - Unit 5
FDER Air Permit

B&V Project 16834
B&V File 32.0402
September 25, 1990

Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Attention: Mr. C. H. Fancy, Chief
Bureau of Air Regulation

Gentlemen:

This is in response to your letter of September 11, 1990, to Mr. Shuler Massey, Vero Beach Municipal Power Plant, requesting additional information about application AC 31-184928 for a Permit to Construct the above project. Subsequent to your letter, Black & Veatch contacted Ms. Teresa Heron of your staff to clarify the information requested. The answers to the questions are provided in the paragraphs below. A copy of your September 11 letter is also attached for reference.

1. What is the basis for the calculations?

Manufacturer's combustion parameters for the GE Model PG6541(B) Frame 6 combustion turbine have been provided as guarantees by General Electric and are presented in the permit application (final table in the "Vendor Information Applicable to Application to Construct" section). These parameters were the basis for all calculations and modeling inputs. The parameters are based on International Standards Organization (ISO) conditions (59 F, 14.7 psi, and 60 percent relative humidity). The following information should clarify additional questions you have:

Condition	Units	Methane	Distillate
Fuel LHV	Btu/lb	21,515	18,550
	Btu/kWh	11,290	11,430
	kJ/Wh	11.902	12.018
Fuel Bound Nitrogen	percent	N/A	<0.015

The heat recovery steam generator (HRSG) will not have supplementary firing (duct burning). Therefore, no additional emissions will be generated from the HRSG.

2. What is the net emission increase from your facility as a result of this modification?

The net emission increase for the addition of the new combustion turbine is given in Table 3-4 of the permit application. These values represent the total emission increase for the facility. No contemporaneous emission increases have occurred during the past five year period.

Currently, the City of Vero Beach Municipal Power Plant has operating permits for four existing units. Permits for Units 2, 3, and 4 were renewed during 1988 with no changes in operating conditions or emission limitations. The permit for Unit 1 is currently being renewed (expires 12/10/90). No changes in operating conditions or emission limits are proposed or expected.

No new sources or equipment such as fuel oil tanks or diesel engine generators have been added that would potentially add contemporaneous increases to the total facility emissions.

3. Provide a flow diagram identifying emission points for the combined cycle plant.

Process flow and plant site arrangement drawings were included in the permit application (Figures 2 and 3 in the "Drawings and Figures Applicable to the Application to Construct" section). These figures clearly show the fuel and combustion gas flows applicable to the turbine addition. One item excluded in the process flow diagram was the bypass option for the HRSG. The bypass option is now shown in the diagram.

In the discussions with Ms. Teresa Heron, Mr. Mike Pelan (B&V) verified that the exhaust gases from the new combustion turbine installation is independent of any of the existing exhaust stacks. A revised process flow diagram is provided to supplement the application.

4. Submit a completed page 1 of 12 of DER Form 17-1.202(1).

Discussions with Ms. Heron indicated that page 1 of 12 of DER Form 17-1.202(1) required resubmission because the document was not signed and dated. While the City's records indicate that this form was completed, a new page 1 is included for your files.

5. Consideration of Diesel Starter

One additional item has arisen subsequent to the submittal of the permit application. As is evident from the attached process flow diagram, a diesel starter will be used for periods of initial turbine startup. The diesel starter is shown in the revised process flow diagram.

The diesel starting motor will be a Detroit diesel engine rated 630 horsepower at 2300 rpm. The engine will operate approximately 15 minutes during the startup sequence and an automatic clutch will disengage the engine when the turbine has reached self-sustaining speed.

The diesel starter and the turbine will not run concurrently. Further, the emissions from the starter are significantly less that those generated by the turbine operating under a base load condition. Therefore, the analysis performed for the air quality impacts continues to represent a worst case situation.

If you have any further questions, please let us know.

Very truly yours,

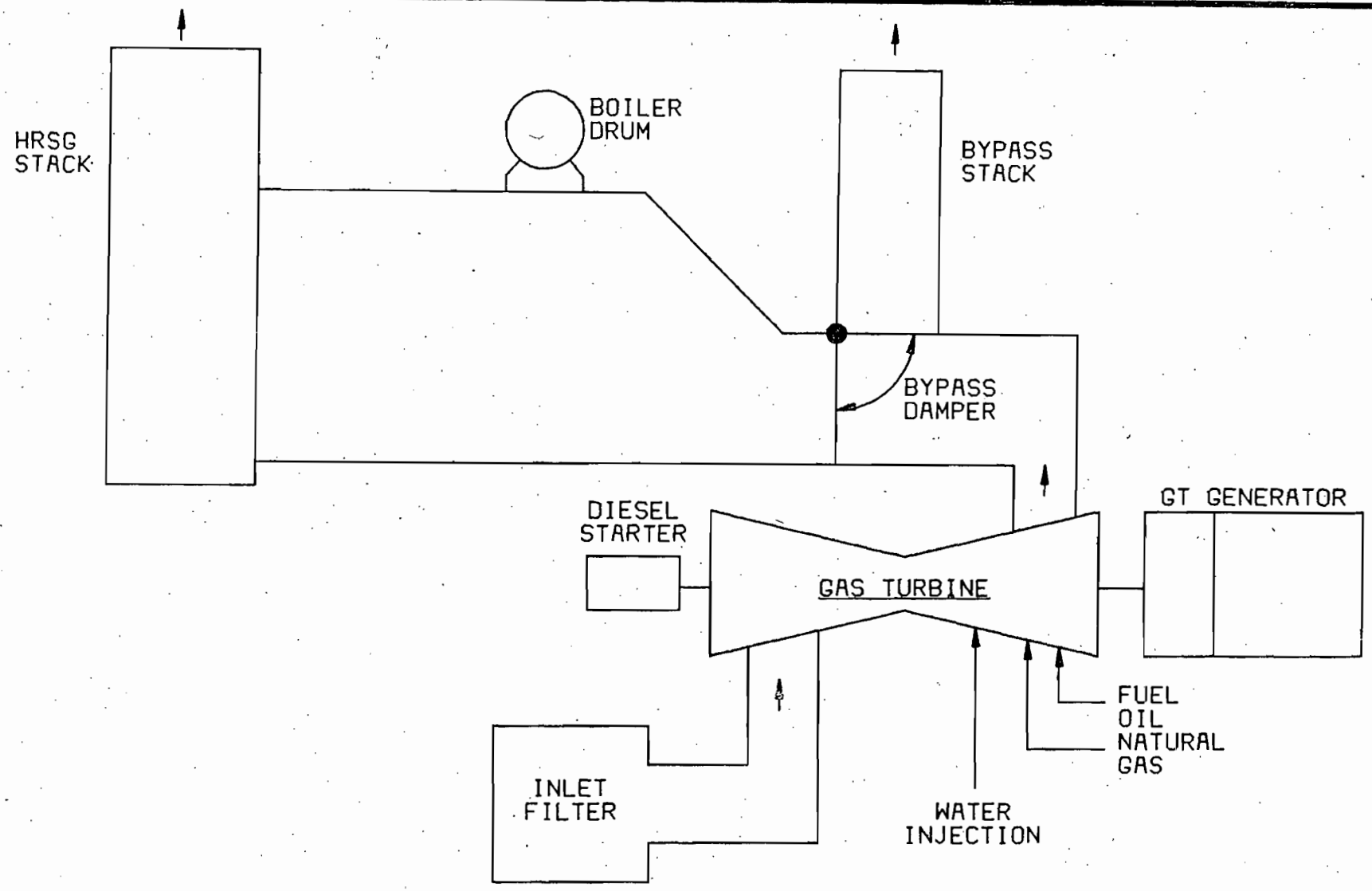
BLACK & VEATCH

L. W. Sherrill

AFH:rs
Attachments

cc: Shuler Massey, City of Vero Beach, Florida
BA/CHF
Teresa Heron
Chuck Collins, Cnt. Dist. } 10/2/90 RPM
Jewell A. Harper, EPA
Cleve Holladay
Barry Andrews

05747BOLAND ACAD 10 c7
A01SL001 A1 1=1
09/26/90 14:46:03



NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM

BLACK & VEATCH

CITY OF VERO BEACH FLORIDA
COMBUSTION TURBINE UNIT 5

PROJECT DRAWING NUMBER: 16835-SK-091790-01

REV

ENGINEER | DRAWN: DKB

CHECKED | DATE

COMBINED CYCLE
MAIN PROCESS FLOW DIAGRAM

CODE

AREA

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Combustion Turbine (CT) [X] New[1] [ ] Existing[1]

APPLICATION TYPE: [XX] Construction [ ] Operation [ ] Modification

COMPANY NAME: The City of Vero Beach, Florida COUNTY: Indian River

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) CT, Gas/Distillate Fired

SOURCE LOCATION: ~~Street~~ Vero Beach Municipal Power Plant City Vero Beach

UTM: East 561.385 km North 3056.538 km

Latitude 27 ° 37 ' 59 "N Longitude 80 ° 22 ' 41 "W

APPLICANT NAME AND TITLE:

APPLICANT ADDRESS:

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of the City of Vero Beach

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: Shuler W. Massey

Shuler W. Massey, Director of Power Resources
Name and Title (Please Type)

Date: 9-28-90 Telephone No. 407-562-7231

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

September 11, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Shuler W. Massey
Director of Power Resources
Vero Beach Municipal Power Plant
Vero Beach, Florida 32961-1389

Dear Mr. Massey:

Re: AC 31-184928 and PSD-FL-152
58 MW Combined Cycle Plant

The Department has received your application for a permit to construct a 58 MW combined cycle plant at the Vero Beach Municipal Power Plant in the city of Vero Beach, Indian River County, Florida. We need more information to process this application. Please complete the application by supplying the information requested below:

Please submit basis of calculations used as follows:

- Manufacturer's heat input rate at manufacturer's rated load (kilojoules/watt-hr).
- Allowance for fuel-bound nitrogen.
- What is the heat input (LHV supplemental heat) to the HRSC?

What is the net emission increase for your facility as a result of this modification? As per F.A.C. Rule 17-2.500(2)(3)., any emission increase at your facility during a 5 year period will be considered a contemporaneous emissions increase and it will be counted towards the net significance level increase.

Provide a flow diagram identifying the emission points for the combined cycle plant. Are these single emission points or will they share the stack with one or more existing sources? Please explain.

Submit a completed page 1 of 12 of DER Form 17-1.202(1).

If you have any questions on the data requested, please call Teresa M. Heron at (904)488-1344 or write to me at the above address.

Sincerely,

Barry D. Andrews

for C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/TH/plm

c: Chuck Collins
Lloyd Wade Sherrill, P.E.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

NOV 28 1990

RECEIVED
DEC 03 1990
DER - BAQM

4APT-AEB

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Vero Beach Municipal Power Plant (PSD-FL-152)
Vero Beach, Florida

Dear Mr. Fancy:

This is to acknowledge receipt of the above referenced facility's application for a prevention of significant deterioration (PSD) construction permit, transmitted by your letter dated October 7, 1990. As discussed between Mr. Barry Andrews of FDER and Ahmed Amanulah of my staff on October 30, 1990, we have the following comments regarding this application.

Vero Beach is proposing to construct a 58 MW combined cycle power plant with its own heat recovery system. This combined cycle power plant is projected to burn natural gas as the primary fuel and No. 2 fuel oil as an alternate fuel.

Our major point of concern is in regards to the BACT determination for NO_x. The applicant proposed wet injection as the control technology for NO_x, rejecting the use of Selective Catalytic Reduction (SCR). The basis for rejection, according to the applicant, was significant adverse energy, economic and environmental impacts.

The major environmental concerns raised by the applicant appear to be the possibility of ammonia slip, the possibility of the formation of SO_3 and ammonium bisulfate, the deactivation of the catalyst due to plugging from sulfur oxides, and the disposal problems related to changing out any vanadium pentoxide catalysts - a hazardous waste under RCRA regulations. What the applicant fails to point out, however, is that there are SCR systems on the market which do not use vanadium pentoxide, or any other metal, as a catalyst. For example, one SCR system makes use of a ceramic molecular sieve to promote the reaction. The ceramic catalyst system has been applied on gas

turbines and diesel engines. The system does not promote the conversion of SO_2 to SO_3 and has virtually no catalyst poisoning, plugging or masking problems. The ammonia slip is also limited. In addition, the catalyst is not considered a hazardous waste.

The energy impacts described by the applicant are not those which would put a strain on the local energy supply or which appear to be significantly different than typical plant energy usage.

The applicant's argument regarding the adverse effects of SCR usage while firing #2 fuel oil also appears to be unjustified. We have contacted other Regions where similar types of combustion turbines are currently operating with SCR controls. Most of these turbines use natural gas as the primary fuel and No. 2 fuel oil as a backup fuel.

Information from Region I also indicates that a SCR system is continuously being utilized, even while the turbine fires oil.

Also, a feasibility study by the Stationary Source Committee of the Northeast States for Coordinated Air Use Management (NESCAUM) on emission limits for gas turbines (October 1988) revealed that sulfur containing fuels could present somewhat of a problem in promoting the use of SCR in the Northeast. However, information recently obtained from Japan and Europe show that as of April 1986, SCR experience extends back eight and a half years on oil-fired boilers, eight years on gas, and six and a half on coal. Japan currently has at least 22 SCR units for coal-fired boilers, 55 SCR units for oil-fired boilers, and 13 SCR units for liquid natural gas (LNG) boilers. In general, figures show that with coal, SCR catalyst life is 2-3 years; 4-7 years with oil; and with LNG or gas, catalyst life is in excess of 6 years. During the initial installations of SCR units, NO_x reductions averaged 30 percent. With operating experience, more recent installations show reductions in most cases of 70-80%.

In any case, the justifications presented by the applicant for rejecting SCR as a control technology do not appear to be convincing. There are SCR technologies on the market which do not have a hazardous waste by-product. SCR has been applied in the United States on gas and fuel oil fired turbines and diesel engines. It would seem, then, that technical feasibility is not an issue, and, achieving a lower NO_x emission limit than the proposed 42 ppm and 65 ppm for a combined cycle unit is reasonable.

Thank you for the opportunity to review this package before the preliminary determination. If you have any questions regarding these comments, please contact Mr. Ahmed Amanulah of my staff at (404) 347-2904.

Sincerely yours,

Douglas Neeley Jr.

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

cc: Shuler W. Massey
Director of Power Resources
Vero Beach Municipal Power Plant
Vero Beach, Florida 32961-1389

B. Andrews
D. Heron
C. Halladay
C. Collins

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 562-7231

MUNICIPAL POWER PLANT

July 31, 1990

State of Florida
Department of Environmental Regulation
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301-2400@

Attention: Mr. Clair Fancy - Bureau Chief

Gentlemen:

Enclosed please find six (6) copies of the Application to Construct Air Pollution Sources for the City of Vero Beach Combustion Turbine Project. Included with the applications are supporting documentation including the Ambient Air Quality Impact (AAQIA) and the Best Available Control Technology (BACT) analyses. Also enclosed is a check in the amount of $5,000 payable to the Department of Environmental Regulation as specified in regulation 17-4.050 (4)(a).

The AAQIA methodology is in accordance with that presented in a Workplan submitted to and approved by the Bureau. The letter of approval has been included along with other correspondence on the permit application preparation. A hard copy and a computer diskette copy of the modeling results to support the AAQIA are included.

It is our understanding of the Florida permit rules that the FDER will make a completeness determination within 30 days of receipt of the application and processing fee. Subsequently, the application will be declared approved or disapproved within 90 days of determination of a completed application.

If you have any questions or need additional information, please contact me at (407) 562-7231 or Mr. Michael Pelan at (913) 339-2699.

Very truly yours,

CITY OF VERO BEACH

Shuler W. Massey

Shuler W. Massey
Director of Power Resources

SWM/dg

cc: D. Heron
C. Halladay
D. Andrews
C. Collins, C Dist,
M. Bementout, EPA

Enclosure

BLACK & VEATCH

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913)339-2000

City of Vero Beach, Florida
Combustion Turbine Unit 5 Addition
Air Quality Impact Workplan

B&V Project 16834
B&V File 32.0200
April 12, 1990

Florida Department of Environmental Regulation
Bureau of Air Quality
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Attention: Mr. Max Linn

Gentlemen:

Enclosed please find two (2) copies of the Ambient Air Quality Impact Analysis Workplan for the proposed combustion turbine addition to the existing Municipal Power Plant in Vero Beach, Florida. The source will be considered a major modification to an existing major stationary source because the proposed pollutant emissions exceed significant emission levels for SO_2, NO_x, and particulate matter. Therefore a Prevention of Significant Deterioration (PSD) review of the source is required.

The workplan presents an overview of the proposed plant, a discussion of the source characteristics and emission rates, a description of the proposed modeling methodology, preliminary modeling results used to evaluate the significance of the ambient air quality impacts, and an overview of BACT considerations and additional air quality impacts.

The preliminary modeling results indicate that the all pollutants emitted from the source will have ambient impacts below PSD ambient air quality significance levels. Therefore, according to PSD guidance, no further air quality analyses are required. Also, because the predicted ambient impacts of the proposed addition are below PSD de minimis monitoring levels, one year of preconstruction monitoring data will not be required. A 5-1/4" computer diskette which contains all modeling data is also enclosed.

A completed permit application, including revised dispersion modeling results and a BACT analysis will be submitted to the DER shortly after review and approval of this workplan. In keeping with our schedule, we would appreciate a response on the adequacy of the workplan by May 15, 1990.

If you have any questions, please direct them to Mr. Michael Pelan at (913) 339-2699.

Very truly yours,

BLACK & VEATCH

L. W. Sherrill

mlp
Enclosure

cc: Mr. Shuler Massey, w/2 copies

Send letter to LW Sherrill

Methoddogy is acceptable
No significant air quality impacts

Any comments - approve methoddogy proposed w.p. with following revisions.

Submit formal PSD with my letter

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary

September 11, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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Vero Beach Municipal Power Plant
Vero Beach, Florida 32961-1389

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- Allowance for fuel-bound nitrogen.
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If you have any questions on the data requested, please call Teresa M. Heron at (904)488-1344 or write to me at the above address.

Sincerely,

Barry D. Andrews

for C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/TH/plm

c: Chuck Collins
Lloyd Wade Sherrill, P.E.

Facility: Vero Beach Pollutant: SO_2
Type of Modelling: Simple Cycle Bypass
Averaging Time: Ann Maximum or HSH .089

Year	Concentration	Distance	Direction	Day	Period
84	.074	10 Km	260°		
85	.073	10 km	270°		
86	.085	10 km	270°		
82	.089	6 km	310°		
83	.067	6km	310°		

Facility: Vero Beach Pollutant: SO_2
Type of Modelling: Simple Cycle Bypass
Averaging Time: 1 hr Maximum or HSH 43.6

Year	Concentration	Distance	Direction	Day	Period
84	25.2	100 m	80°	89	10
85	7.2	1250 m	70°	215	11
86	11.1	100 m	310°	357	10
82	42.4	100 m	240°	88	11
83	43.6	100 m	260°	20	9

Facility: Pollutant: SO_2
Type of Modelling:
Averaging Time: 3 hr Maximum or HSH 21.8

Year	Concentration	Distance	Direction	Day	Period
84	8.74	100 m	80°	89	4
85	3.16	300 m	250°	240	4
86	3.02	1250 m	280°	150	5
82	8.4	100 m	240°	88	5
83	21.8	100 m	260°	20	4

19.0
7.8
14.5
88,4 100m, 240° 38.3 35.5
20,4 32.1 320

Ann .44
1hr 43.6
3hr 21.8
8hr 10.4
24hr 3.62 ÷ 2.4

NOx .5 Ann ok
PM .04 Ann ok
.30 24hr ok
Be 4E-6 Ann ok
1E-4 8hr ok
3.5E-5 24hr ok
H_2SO_4 .11 24hr ok
Formaldehyde ok Hg ok
Lead ok NH
Mang ok

As 6.4E-6 Ann ok
1.6E-4 8hr ok
5.6E-5 8hr ok
Cd 1.6E-5 Ann ok
4E-4 8hr ok
1.4E-4 24hr ok
Cr 1.8E-3 8hr ok
6.3E-4 24hr ok
Cu 3.8E-3 24hr ok
1E-2 8hr ok

Facility: Vero Beach Pollutant: SO_2
Type of Modelling: Simple Cycle Bypass
Averaging Time: 8 hr Maximum or HSH 10.41

Year	Concentration	Distance	Direction	Day	Period
84	1.76	4 km	340	200	2
85	1.55	4 km	320	57	2
86	1.60	5 km	280	145	2
82	1.60	4 km	310	166	2
83	10.41	100 m	260	20	3

Facility: Vero Beach Pollutant: SO_2
Type of Modelling: Simple Cycle Bypass
Averaging Time: 24 hr Maximum or HSH 1.82

Year	Concentration	Distance	Direction	Day	Period
84	.76	8 km	260	23	1
85	.70	7 km	270	114	1
86	.67	10 km	240	144	1
82	.73	5 km	310	188	1
83	1.82	100 m	260	58	1

3.0
1.7
1.8
6.1 D8,1
100m, 240°
12.7

Facility: Pollutant:
Type of Modelling:
Averaging Time: Maximum or HSH

Year	Concentration	Distance	Direction	Day	Period

Facility: Vero Beach Pollutant: SO_2
Type of Modelling: Combined Cycle HRSG
Averaging Time: Ann Maximum or HSH .44

Year	Concentration	Distance	Direction	Day	Period
82	.44	2250	310		
83	.35	2250	310		
84	.40	3000	260		
85	.38	2500	270		
86	.43	2750	270		

Facility: Vero Beach Pollutant: SO_2
Type of Modelling: CC HRSG
Averaging Time: 1 hr Maximum or HSH 40.9

Year	Concentration	Distance	Direction	Day	Period
82	40.9	200	240	88	11
83	38.7	200	260	20	15
84	17.3	800	130	223	12
85	17.9	800	80	201	11
86	17.4	800	270	145	12

Facility: Vero Beach Pollutant: SO_2
Type of Modelling: CC HRSG
Averaging Time: 3hr Maximum or HSH 13.8

Done 3/4/91

Year	Concentration	Distance	Direction	Day	Period
82	11.1	1750	280	132	4
83	13.8	200	260	20	3
84	11.5	1750	260	93	4
85	11.8	1500	270	113	5
86	11.5	1500	280	169	4

36.9
18.0
11.8
12.9
14.1

2 values over 25.0 36.9 200m, 240°, yr 82, 88, 4

Facility: Vero Beach
Type of Modelling: CC HRSG
Averaging Time: 8hr

Pollutant: SO_2
Maximum or HSH 7.85

Year	Concentration	Distance	Direction	Day	Period
82	6.72	1750	280	135	2
83	7.28	1500	240	111	2
84	7.85	1750	340	200	2
85	6.73	1750	270	113	2
86	7.01	1750	120	112	2

Facility: Vero Beach
Type of Modelling: CC HRSG
Averaging Time: 24hr

Pollutant: SO2
Maximum or HSH 3.62

Year	Concentration	Distance	Direction	Day	Period
82	3.36	4km	220	313	1
83	3.19	2km	270	120	1
84	3.62	3km	260	266	1
85	3.16	2km	290	245	1
86	3.16	4km	270	17	1

4.79
6.76
3.89 ✓
4.08
3.82

1 value over 5.0 200m, 260 6.79 83, 20, 1

Facility:
Type of Modelling:
Averaging Time:

Pollutant:
Maximum or HSH

Year	Concentration	Distance	Direction	Day	Period

ISCST - VERSION 3.4 (DATED 88348)

IBM-PC VERSION (1.64)
(C) COPYRIGHT 1988, TRINITY CONSULTANTS, INC.
SERIAL NUMBER 5056 SOLD TO BLACK & VEATCH
RUN BEGAN ON 03-11-90 AT 17:45:26

NOTE THAT THE BUILDING DIMENSIONS ON CARD 6,1 FOR SOURCE NO. 1 DO NOT MEET THE SCHULMAN-SCIRE CRITERIA. THEREFORE, DIRECTION SPECIFIC BUILDING DIMENSIONS WILL NOT BE USED BY THE MODEL.

See
Diskette with
Vero Beach Modeling
Results 1982-1986
for Modeling Results

VERO BEACH FRAME 6 COMB. CYCLE - 125 FT STK VB125CB2.DAT

CALCULATE (CONCENTRATION=1,DEPOSITION=2)	ISW(1) = 1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)	ISW(2) = 2
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)	ISW(3) = 1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)	ISW(4) = 0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)	ISW(5) = 0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)	ISW(6) = 1
COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)	
WITH THE FOLLOWING TIME PERIODS:	
HOURLY (YES=1,NO=0)	ISW(7) = 1
2-HOUR (YES=1,NO=0)	ISW(8) = 0
3-HOUR (YES=1,NO=0)	ISW(9) = 1
4-HOUR (YES=1,NO=0)	ISW(10) = 0
6-HOUR (YES=1,NO=0)	ISW(11) = 0
8-HOUR (YES=1,NO=0)	ISW(12) = 1
12-HOUR (YES=1,NO=0)	ISW(13) = 0
24-HOUR (YES=1,NO=0)	ISW(14) = 1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) = 1
PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE	
SPECIFIED BY ISW(7) THROUGH ISW(14):	
DAILY TABLES (YES=1,NO=0)	ISW(16) = 0
HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)	ISW(17) = 1
MAXIMUM 50 TABLES (YES=1,NO=0)	ISW(18) = 0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)	ISW(19) = 1
RURAL-URBAN OPTION (RU.=0,UR. MODE 1=1,UR. MODE 2=2,UR. MODE 3=3)	ISW(20) = 0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(21) = 1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(22) = 1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)	ISW(23) = 0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)	ISW(24) = 1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)	ISW(25) = 2
PROGRAM USES BUOYANCY INDUCED DISPERSION (YES=1,NO=2)	ISW(26) = 1
CONCENTRATIONS DURING CALM PERIODS SET = 0 (YES=1,NO=2)	ISW(27) = 1
REG. DEFAULT OPTION CHOSEN (YES=1,NO=2)	ISW(28) = 1
TYPE OF POLLUTANT TO BE MODELLED (1=SO2,2=OTHER)	ISW(29) = 1
DEBUG OPTION CHOSEN (YES=1,NO=2)	ISW(30) = 2
ABOVE GROUND (FLAGPOLE) RECEPTORS USED (YES=1,NO=0)	ISW(31) = 0
NUMBER OF INPUT SOURCES	NSOURC = 1
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)	NGROUP = 0
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)	IPERD = 0
NUMBER OF X (RANGE) GRID VALUES	NXPNTS = 25
NUMBER OF Y (THETA) GRID VALUES	NYPNTS = 36
NUMBER OF DISCRETE RECEPTORS	NXWYPT = 0
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	TK =.10000E+07
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED	ZR = 10.00 METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET = 9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION	DECAY = .000000E+00
SURFACE STATION NO.	ISS = 12844
YEAR OF SURFACE DATA	ISY = 82
UPPER AIR STATION NO.	IUS = 12844
YEAR OF UPPER AIR DATA	IUY = 82
ALLOCATED DATA STORAGE	LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT = 21048 WORDS

*** VERO BEACH FRAME 6 COMB. CYCLE - 125 FT STK   VB125CB2.DAT ***

*** METEOROLOGICAL DAYS TO BE PROCESSED ***
(IF=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 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1
```

*** 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

*** VERO BEACH FRAME 6 COMB. CYCLE - 125 FT STK VB125C82.DAT ***

X,Y-COORDINATES OF THE CENTER OF THE POLAR RECEPTOR GRID (METERS) = (0., 0.)

*** RANGES OF POLAR GRID SYSTEM ***
(METERS)

100.0, 200.0, 300.0, 400.0, 500.0, 600.0, 700.0, 800.0, 900.0, 1000.0,
1250.0, 1500.0, 1750.0, 2000.0, 2250.0, 2500.0, 2750.0, 3000.0, 4000.0, 5000.0,
6000.0, 7000.0, 8000.0, 9000.0, 10000.0,

*** RADIAL ANGLES OF POLAR GRID SYSTEM ***

(DEGREES)

10.0, 20.0, 30.0, 40.0, 50.0, 60.0, 70.0, 80.0, 90.0, 100.0,
110.0, 120.0, 130.0, 140.0, 150.0, 160.0, 170.0, 180.0, 190.0, 200.0,
210.0, 220.0, 230.0, 240.0, 250.0, 260.0, 270.0, 280.0, 290.0, 300.0,
310.0, 320.0, 330.0, 340.0, 350.0, 360.0,

*** VERO BEACH FRAME 6 COMB. CYCLE - 125 FT STK VB125C82.DAT ***

*** SOURCE DATA ***

SOURCE NUMBER	P E	W A Y K E	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (GRAMS/SEC) TYPE=2 (GRAMS/SEC) *PER METER**2	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	HEIGHT (METERS)	TEMP. TYPE=0 (DEG.K); VERT.DIM TYPE=1 (METERS)	EXIT VEL. TYPE=0 (M/SEC); HORZ.DIM TYPE=1,2 (METERS)	DIAMETER TYPE=0 (METERS)	BLDG. HEIGHT TYPE=0 (METERS)	BLDG. LENGTH TYPE=0 (METERS)	BLDG. WIDTH TYPE=0 (METERS)
1	0	0 0	0	.15057E+02	.0	.0	.0	38.10	416.48	27.50	2.80	18.29	81.65	81.65

* CALM HOURS (=1) FOR DAY	1 *	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	2 *	1	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	6 *	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	7 *	1	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	8 *	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
* CALM HOURS (=1) FOR DAY	10 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	11 *	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	12 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0
* CALM HOURS (=1) FOR DAY	13 *	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	16 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0
* CALM HOURS (=1) FOR DAY	17 *	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
* CALM HOURS (=1) FOR DAY	18 *	0	0	1	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
* CALM HOURS (=1) FOR DAY	19 *	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
* CALM HOURS (=1) FOR DAY	20 *	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	21 *	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
* CALM HOURS (=1) FOR DAY	22 *	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	25 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
* CALM HOURS (=1) FOR DAY	37 *	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
* CALM HOURS (=1) FOR DAY	41 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
* CALM HOURS (=1) FOR DAY	42 *	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	43 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	49 *	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
* CALM HOURS (=1) FOR DAY	50 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0
* CALM HOURS (=1) FOR DAY	51 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	54 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
* CALM HOURS (=1) FOR DAY	55 *	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	56 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
* CALM HOURS (=1) FOR DAY	57 *	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	62 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
* CALM HOURS (=1) FOR DAY	63 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
* CALM HOURS (=1) FOR DAY	64 *	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
* CALM HOURS (=1) FOR DAY	65 *	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	70 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
* CALM HOURS (=1) FOR DAY	71 *	0	0	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	72 *	1	1	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	73 *	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	75 *	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	76 *	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	77 *	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	79 *	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	80 *	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	81 *	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	83 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
* CALM HOURS (=1) FOR DAY	84 *	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
* CALM HOURS (=1) FOR DAY	95 *	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	99 *	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	100 *	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	104 *	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	105 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
* CALM HOURS (=1) FOR DAY	108 *	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

* CALM HOURS (=1) FOR DAY 109 *	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 111 *	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 112 *	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 113 *	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 116 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
* CALM HOURS (=1) FOR DAY 117 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
* CALM HOURS (=1) FOR DAY 118 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
* CALM HOURS (=1) FOR DAY 130 *	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 141 *	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 142 *	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 144 *	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 145 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
* CALM HOURS (=1) FOR DAY 146 *	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 147 *	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 148 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
* CALM HOURS (=1) FOR DAY 149 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
* CALM HOURS (=1) FOR DAY 150 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 152 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
* CALM HOURS (=1) FOR DAY 155 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
* CALM HOURS (=1) FOR DAY 157 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
* CALM HOURS (=1) FOR DAY 158 *	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 159 *	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
* CALM HOURS (=1) FOR DAY 160 *	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 161 *	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 164 *	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
* CALM HOURS (=1) FOR DAY 165 *	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 166 *	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 168 *	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 174 *	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 175 *	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
* CALM HOURS (=1) FOR DAY 176 *	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
* CALM HOURS (=1) FOR DAY 177 *	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
* CALM HOURS (=1) FOR DAY 178 *	1	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
* CALM HOURS (=1) FOR DAY 179 *	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 180 *	1	0	1	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 181 *	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 182 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
* CALM HOURS (=1) FOR DAY 184 *	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 185 *	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 186 *	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 187 *	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 193 *	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 194 *	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 195 *	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
* CALM HOURS (=1) FOR DAY 196 *	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 197 *	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 198 *	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 199 *	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
* CALM HOURS (=1) FOR DAY 200 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
* CALM HOURS (=1) FOR DAY 201 *	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 202 *	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 203 *	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 204 *	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
* CALM HOURS (=1) FOR DAY 205 *	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 206 *	0	0	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
* CALM HOURS (=1) FOR DAY 207 *	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
* CALM HOURS (=1) FOR DAY 208 *	1	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 209 *	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
* CALM HOURS (=1) FOR DAY 210 *	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 212 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
* CALM HOURS (=1) FOR DAY 213 *	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 215 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
* CALM HOURS (=1) FOR DAY 216 *	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 217 *	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 218 *	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 223 *	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# CALM HOURS (=1) FOR DAY 224 #	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	0
# CALM HOURS (=1) FOR DAY 225 #	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
# CALM HOURS (=1) FOR DAY 226 #	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
# CALM HOURS (=1) FOR DAY 227 #	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
# CALM HOURS (=1) FOR DAY 228 #	1	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0
# CALM HOURS (=1) FOR DAY 229 #	1	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 230 #	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 231 #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
# CALM HOURS (=1) FOR DAY 232 #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
# CALM HOURS (=1) FOR DAY 233 #	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
# CALM HOURS (=1) FOR DAY 234 #	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
# CALM HOURS (=1) FOR DAY 235 #	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 236 #	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 237 #	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 238 #	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 239 #	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 240 #	1	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 241 #	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 242 #	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 245 #	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 246 #	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 247 #	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1
# CALM HOURS (=1) FOR DAY 248 #	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
# CALM HOURS (=1) FOR DAY 249 #	1	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 250 #	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 251 #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
# CALM HOURS (=1) FOR DAY 252 #	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 253 #	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
# CALM HOURS (=1) FOR DAY 254 #	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 257 #	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 260 #	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 261 #	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
# CALM HOURS (=1) FOR DAY 262 #	0	0	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0
# CALM HOURS (=1) FOR DAY 263 #	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 264 #	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
# CALM HOURS (=1) FOR DAY 265 #	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
# CALM HOURS (=1) FOR DAY 266 #	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 268 #	0	1	0	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0
# CALM HOURS (=1) FOR DAY 269 #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
# CALM HOURS (=1) FOR DAY 270 #	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0
# CALM HOURS (=1) FOR DAY 271 #	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 273 #	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 274 #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
# CALM HOURS (=1) FOR DAY 275 #	0	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 277 #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
# CALM HOURS (=1) FOR DAY 278 #	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0
# CALM HOURS (=1) FOR DAY 279 #	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 282 #	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 283 #	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 287 #	1	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 295 #	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 296 #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 305 #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
# CALM HOURS (=1) FOR DAY 306 #	1	1	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
# CALM HOURS (=1) FOR DAY 308 #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
# CALM HOURS (=1) FOR DAY 317 #	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 318 #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0
# CALM HOURS (=1) FOR DAY 319 #	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 321 #	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 323 #	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0
# CALM HOURS (=1) FOR DAY 324 #	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 327 #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
# CALM HOURS (=1) FOR DAY 328 #	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0
# CALM HOURS (=1) FOR DAY 329 #	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# CALM HOURS (=1) FOR DAY 333 #	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0
# CALM HOURS (=1) FOR DAY 334 #	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

```
* CALM HOURS (=1) FOR DAY 340 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 1 1
* CALM HOURS (=1) FOR DAY 341 * 1 0 0 0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 345 * 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 354 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0
* CALM HOURS (=1) FOR DAY 355 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0 0
* CALM HOURS (=1) FOR DAY 363 * 0 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 364 * 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 365 * 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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ISCST - VERSION 3.4 (DATED 88348)

IBM-PC VERSION (1.64)

SERIAL NUMBER 5056 SOLD TO BLACK & VEATCH
RUN BEGAN ON 03-12-90 AT 19:53:52

VERO BEACH FRAME 6 SIMPLE CYCLE - 80 FT STK VB80S82.DAT

CALCULATE (CONCENTRATION=1,DEPOSITION=2)	ISW(1) = 1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)	ISW(2) = 2
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)	ISW(3) = 1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)	ISW(4) = 0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)	ISW(5) = 0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)	ISW(6) = 1
COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)	
WITH THE FOLLOWING TIME PERIODS:	
HOURLY (YES=1,NO=0)	ISW(7) = 1
2-HOUR (YES=1,NO=0)	ISW(8) = 0
3-HOUR (YES=1,NO=0)	ISW(9) = 1
4-HOUR (YES=1,NO=0)	ISW(10) = 0
6-HOUR (YES=1,NO=0)	ISW(11) = 0
8-HOUR (YES=1,NO=0)	ISW(12) = 1
12-HOUR (YES=1,NO=0)	ISW(13) = 0
24-HOUR (YES=1,NO=0)	ISW(14) = 1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) = 1
PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE	
SPECIFIED BY ISW(7) THROUGH ISW(14):	
DAILY TABLES (YES=1,NO=0)	ISW(16) = 0
HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)	ISW(17) = 1
MAXIMUM 50 TABLES (YES=1,NO=0)	ISW(18) = 0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)	ISW(19) = 1
RURAL-URBAN OPTION (RU.=0,UR. MODE 1=1,UR. MODE 2=2,UR. MODE 3=3)	ISW(20) = 0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(21) = 1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(22) = 1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)	ISW(23) = 0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)	ISW(24) = 1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)	ISW(25) = 2
PROGRAM USES BUOYANCY INDUCED DISPERSION (YES=1,NO=2)	ISW(26) = 1
CONCENTRATIONS DURING CALM PERIODS SET = 0 (YES=1,NO=2)	ISW(27) = 1
REG. DEFAULT OPTION CHOSEN (YES=1,NO=2)	ISW(28) = 1
TYPE OF POLLUTANT TO BE MODELLED (1=SO2,2=OTHER)	ISW(29) = 1
DEBUG OPTION CHOSEN (YES=1,NO=2)	ISW(30) = 2
ABOVE GROUND (FLAGPOLE) RECEPTORS USED (YES=1,NO=0)	ISW(31) = 0
NUMBER OF INPUT SOURCES	NSOURC = 1
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)	NGROUP = 0
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)	IPERD = 0
NUMBER OF X (RANGE) GRID VALUES	NXPNTS = 25
NUMBER OF Y (THETA) GRID VALUES	NYPNTS = 36
NUMBER OF DISCRETE RECEPTORS	NXWYPT = 0
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	TK =.10000E+07
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED	ZR = 10.00 METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET = 9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION	DECAY = .000000E+00
SURFACE STATION NO.	ISS = 12844
YEAR OF SURFACE DATA	ISY = 82
UPPER AIR STATION NO.	IUS = 12844
YEAR OF UPPER AIR DATA	IUY = 82
ALLOCATED DATA STORAGE	LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT = 21048 WORDS

*** VERO BEACH FRAME 6 SIMPLE CYCLE - 80 FT STK VB80S82.DAT ***

*** METEOROLOGICAL DAYS TO BE PROCESSED ***
(IF=1)

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

*** 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	WIND SPEED CATEGORY					
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	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

*** VERO BEACH FRAME 6 SIMPLE CYCLE - 80 FT STK VB80S82.DAT ***

X,Y-COORDINATES OF THE CENTER OF THE POLAR RECEPTOR GRID (METERS) = (0., 0.)

*** RANGES OF POLAR GRID SYSTEM ***
(METERS)

100.0,	200.0,	300.0,	400.0,	500.0,	600.0,	700.0,	800.0,	900.0,	1000.0,
1250.0,	1500.0,	1750.0,	2000.0,	2250.0,	2500.0,	2750.0,	3000.0,	4000.0,	5000.0,
6000.0,	7000.0,	8000.0,	9000.0,	10000.0,					

*** RADIAL ANGLES OF POLAR GRID SYSTEM ***

(DEGREES)

10.0,	20.0,	30.0,	40.0,	50.0,	60.0,	70.0,	80.0,	90.0,	100.0,
110.0,	120.0,	130.0,	140.0,	150.0,	160.0,	170.0,	180.0,	190.0,	200.0,
210.0,	220.0,	230.0,	240.0,	250.0,	260.0,	270.0,	280.0,	290.0,	300.0,
310.0,	320.0,	330.0,	340.0,	350.0,	360.0,				

*** VERO BEACH FRAME 6 SIMPLE CYCLE - 80 FT STK VB80S82.DAT ***

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (GRAMS/SEC) TYPE=2 (GRAMS/SEC) *PER METER**2	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	HEIGHT (METERS)	TEMP. TYPE=0 (DEG.K); VERT.DIM TYPE=1 (METERS)	EXIT VEL. TYPE=0 (M/SEC); HORZ.DIM TYPE=1,2 (METERS)	DIAMETER TYPE=0 (METERS)	BLDG. HEIGHT TYPE=0 (METERS)	BLDG. LENGTH TYPE=0 (METERS)	BLDG. WIDTH TYPE=0 (METERS)
1	0	0	0	.15057E+02	.0	.0	.0	24.38	812.59	27.72	3.90	-18.29	81.65	81.65

VERO BEACH FRAME 6 SIMPLE CYCLE - 80 FT STK VB80S82.DAT

DIRECTION SPECIFIC BUILDING DIMENSIONS

SOURCE 1

IFV	BH	BW	IFV	BH	BW	IFV	BH	BW	IFV	BH	BW	IFV	BH	BW	IFV	BH	BW
1	18.3,	61.5,	2	18.3,	64.6,	3	18.3,	72.7,	4	18.3,	78.7,	5	18.3,	82.3,	6	18.3,	83.4,
7	18.3,	81.9,	8	18.3,	78.0,	9	18.3,	71.7,	10	18.3,	80.7,	11	18.3,	87.2,	12	18.3,	91.0,
13	18.3,	92.1,	14	18.3,	90.4,	15	18.3,	86.0,	16	18.3,	78.9,	17	18.3,	69.5,	18	18.3,	57.9,
19	18.3,	61.5,	20	18.3,	64.6,	21	18.3,	72.7,	22	18.3,	78.7,	23	18.3,	82.3,	24	18.3,	83.4,
25	18.3,	81.9,	26	18.3,	78.0,	27	18.3,	71.7,	28	18.3,	80.7,	29	18.3,	87.2,	30	18.3,	91.0,
31	18.3,	92.1,	32	18.3,	90.4,	33	18.3,	86.0,	34	18.3,	78.9,	35	18.3,	69.5,	36	18.3,	57.9,

* CALM HOURS (=1) FOR DAY 1 *	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 2 *	1	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 6 *	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 7 *	1	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 8 *	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
* CALM HOURS (=1) FOR DAY 10 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
* CALM HOURS (=1) FOR DAY 11 *	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 12 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0
* CALM HOURS (=1) FOR DAY 13 *	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 16 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0
* CALM HOURS (=1) FOR DAY 17 *	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
* CALM HOURS (=1) FOR DAY 18 *	0	0	1	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	
* CALM HOURS (=1) FOR DAY 19 *	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
* CALM HOURS (=1) FOR DAY 20 *	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 21 *	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
* CALM HOURS (=1) FOR DAY 22 *	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 25 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
* CALM HOURS (=1) FOR DAY 37 *	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
* CALM HOURS (=1) FOR DAY 41 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
* CALM HOURS (=1) FOR DAY 42 *	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 43 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 49 *	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
* CALM HOURS (=1) FOR DAY 50 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0
* CALM HOURS (=1) FOR DAY 51 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 54 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
* CALM HOURS (=1) FOR DAY 55 *	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 56 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
* CALM HOURS (=1) FOR DAY 57 *	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 62 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
* CALM HOURS (=1) FOR DAY 63 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
* CALM HOURS (=1) FOR DAY 64 *	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
* CALM HOURS (=1) FOR DAY 65 *	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 70 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
* CALM HOURS (=1) FOR DAY 71 *	0	0	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 72 *	1	1	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 73 *	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 75 *	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 76 *	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 77 *	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 79 *	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 80 *	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 81 *	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 83 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
* CALM HOURS (=1) FOR DAY 84 *	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
* CALM HOURS (=1) FOR DAY 95 *	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 99 *	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 100 *	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ISCST - VERSION 3.4 (DATED 88348)

IBM-PC VERSION (1.64)
(C) COPYRIGHT 1988, TRINITY CONSULTANTS, INC.
SERIAL NUMBER 5056 SOLD TO BLACK & VEATCH
RUN BEGAN ON 03-13-90 AT 17:09:31

NOTE THAT THE BUILDING DIMENSIONS ON CARD 6,1 FOR SOURCE NO. 1 DO NOT MEET THE SCHULMAN-SCIRE CRITERIA. THEREFORE, DIRECTION SPECIFIC BUILDING DIMENSIONS WILL NOT BE USED BY THE MODEL.

*** VERO BEACH FRAME 6 COMB. CYCLE - FINE GRID VB24HR84.DAT ***

CALCULATE (CONCENTRATION=1,DEPOSITION=2)	ISW(1) = 1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)	ISW(2) = 2
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)	ISW(3) = 1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)	ISW(4) = 0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)	ISW(5) = 0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)	ISW(6) = 1
COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)	
WITH THE FOLLOWING TIME PERIODS:	
HOURLY (YES=1,NO=0)	ISW(7) = 0
2-HOUR (YES=1,NO=0)	ISW(8) = 0
3-HOUR (YES=1,NO=0)	ISW(9) = 0
4-HOUR (YES=1,NO=0)	ISW(10) = 0
6-HOUR (YES=1,NO=0)	ISW(11) = 0
8-HOUR (YES=1,NO=0)	ISW(12) = 0
12-HOUR (YES=1,NO=0)	ISW(13) = 0
24-HOUR (YES=1,NO=0)	ISW(14) = 1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) = 0
PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE	
SPECIFIED BY ISW(7) THROUGH ISW(14):	
DAILY TABLES (YES=1,NO=0)	ISW(16) = 0
HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)	ISW(17) = 1
MAXIMUM 50 TABLES (YES=1,NO=0)	ISW(18) = 0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)	ISW(19) = 1
RURAL-URBAN OPTION (RU.=0,UR. MODE 1=1,UR. MODE 2=2,UR. MODE 3=3)	ISW(20) = 0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(21) = 1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(22) = 1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)	ISW(23) = 0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)	ISW(24) = 1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)	ISW(25) = 2
PROGRAM USES BUOYANCY INDUCED DISPERSION (YES=1,NO=2)	ISW(26) = 1
CONCENTRATIONS DURING CALM PERIODS SET = 0 (YES=1,NO=2)	ISW(27) = 1
REG. DEFAULT OPTION CHOSEN (YES=1,NO=2)	ISW(28) = 1
TYPE OF POLLUTANT TO BE MODELLED (1=SO2,2=OTHER)	ISW(29) = 1
DEBUG OPTION CHOSEN (YES=1,NO=2)	ISW(30) = 2
ABOVE GROUND (FLAGPOLE) RECEPTORS USED (YES=1,NO=0)	ISW(31) = 0
NUMBER OF INPUT SOURCES	NSOURC = 1
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)	NGROUP = 0
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)	IPERD = 0
NUMBER OF X (RANGE) GRID VALUES	NXPNTS = 8
NUMBER OF Y (THETA) GRID VALUES	NYPNTS = 36
NUMBER OF DISCRETE RECEPTORS	NXWYPT = 0
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	TK =.10000E+07
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED	ZR = 10.00 METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET = 9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION	DECAY = .000000E+00
SURFACE STATION NO.	ISS = 12844
YEAR OF SURFACE DATA	ISY = 84
UPPER AIR STATION NO.	IUS = 12844
YEAR OF UPPER AIR DATA	IUY = 84
ALLOCATED DATA STORAGE	LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT = 2347 WORDS

*** VERO BEACH FRAME 6 COMB. CYCLE - FINE GRID   VB24HR84.DAT ***

*** METEOROLOGICAL DAYS TO BE PROCESSED ***
(IF=1)

```
0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 1 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0   0 0 0 0 0 0
```

*** 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			WIND SPEED CATEGORY			
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			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

*** VERO BEACH FRAME 6 COMB. CYCLE - FINE GRID VB24HR84.DAT ***

X,Y-COORDINATES OF THE CENTER OF THE POLAR RECEPTOR GRID (METERS) = (0., 0.)

*** RANGES OF POLAR GRID SYSTEM ***
(METERS)

2600.0, 2700.0, 2800.0, 2900.0, 3100.0, 3200.0, 3300.0, 3400.0,

*** RADIAL ANGLES OF POLAR GRID SYSTEM ***

(DEGREES)

10.0, 20.0, 30.0, 40.0, 50.0, 60.0, 70.0, 80.0, 90.0, 100.0,
110.0, 120.0, 130.0, 140.0, 150.0, 160.0, 170.0, 180.0, 190.0, 200.0,
210.0, 220.0, 230.0, 240.0, 250.0, 260.0, 270.0, 280.0, 290.0, 300.0,
310.0, 320.0, 330.0, 340.0, 350.0, 360.0,

*** SOURCE DATA ***

SOURCE NUMBER	T Y P E	W A K E	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (GRAMS/SEC) TYPE=2 (GRAMS/SEC) *PER METER**2	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	HEIGHT (METERS)	TEMP. TYPE=0 (DEG.K); VERT.DIM TYPE=1 (METERS)	EXIT VEL. TYPE=0 (M/SEC); HORZ.DIM TYPE=1,2 (METERS)	DIAMETER TYPE=0 (METERS)	BLDG. HEIGHT TYPE=0 (METERS)	BLDG. LENGTH TYPE=0 (METERS)	BLDG. WIDTH TYPE=0 (METERS)
1	0	0	0	.15057E+02	.0	.0	.0	38.10	416.48	27.50	2.80	18.29	81.65	81.65

*** VERO BEACH FRAME 6 COMB. CYCLE - FINE GRID VB24HR84.DAT ***

* HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 3.73691 AND OCCURRED AT (2600.0, 260.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 2600.0	2700.0	2800.0	2900.0	3100.0
360.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
350.0 /	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)
340.0 /	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)
330.0 /	.00225 (266, 1)	.00229 (266, 1)	.00232 (266, 1)	.00235 (266, 1)	.00240 (266, 1)
320.0 /	.17385 (266, 1)	.18491 (266, 1)	.19590 (266, 1)	.20677 (266, 1)	.22767 (266, 1)
310.0 /	.00745 (266, 1)	.00768 (266, 1)	.00791 (266, 1)	.00813 (266, 1)	.00850 (266, 1)
300.0 /	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)
290.0 /	.00112 (266, 1)	.00109 (266, 1)	.00106 (266, 1)	.00103 (266, 1)	.00097 (266, 1)
280.0 /	.58540 (266, 1)	.58915 (266, 1)	.59143 (266, 1)	.59241 (266, 1)	.58995 (266, 1)
270.0 /	2.08313 (266, 1)	2.08082 (266, 1)	2.07387 (266, 1)	2.06294 (266, 1)	2.02849 (266, 1)
260.0 /	3.73691 (266, 1)	3.71685 (266, 1)	3.69089 (266, 1)	3.65991 (266, 1)	3.58107 (266, 1)
250.0 /	1.40771 (266, 1)	1.38447 (266, 1)	1.36051 (266, 1)	1.33605 (266, 1)	1.28494 (266, 1)
240.0 /	.01729 (266, 1)	.01631 (266, 1)	.01540 (266, 1)	.01456 (266, 1)	.01303 (266, 1)
230.0 /	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)
220.0 /	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)
210.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
200.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
190.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
180.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
170.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
160.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
150.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
140.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
130.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
120.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
110.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
100.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
90.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
80.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
70.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
60.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
50.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
40.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
30.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
20.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
10.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)

*** VERO BEACH FRAME & COMB. CYCLE - FINE GRID VB24HR84.DAT ***

* HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 3.73691 AND OCCURRED AT (2600.0, 260.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 3200.0	3300.0	3400.0
360.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
350.0 /	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)
340.0 /	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)
330.0 /	.00242 (266, 1)	.00243 (266, 1)	.00244 (266, 1)
320.0 /	.23763 (266, 1)	.24737 (266, 1)	.25686 (266, 1)
310.0 /	.00865 (266, 1)	.00879 (266, 1)	.00891 (266, 1)
300.0 /	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)
290.0 /	.00093 (266, 1)	.00090 (266, 1)	.00087 (266, 1)
280.0 /	.58682 (266, 1)	.58305 (266, 1)	.57873 (266, 1)
270.0 /	2.00620 (266, 1)	1.98233 (266, 1)	1.95718 (266, 1)
260.0 /	3.53500 (266, 1)	3.48724 (266, 1)	3.43816 (266, 1)
250.0 /	1.25866 (266, 1)	1.23266 (266, 1)	1.20701 (266, 1)
240.0 /	.01233 (266, 1)	.01169 (266, 1)	.01108 (266, 1)
230.0 /	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)
220.0 /	.00000 (266, 1)	.00000 (266, 1)	.00000 (266, 1)
210.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
200.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
190.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
180.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
170.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
160.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
150.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
140.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
130.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
120.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
110.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
100.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
90.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
80.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
70.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
60.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
50.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
40.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
30.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
20.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
10.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)

*** VERO BEACH FRAME 6 COMB. CYCLE - FINE GRID VB24HR84.DAT ***

* SECOND HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS .00000 AND OCCURRED AT (3400.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 2600.0	2700.0	2800.0	2900.0	3100.0
360.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
350.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
340.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
330.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
320.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
310.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
300.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
290.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
280.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
270.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
260.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
250.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
240.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
230.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
220.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
210.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
200.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
190.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
180.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
170.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
160.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
150.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
140.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
130.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
120.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
110.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
100.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
90.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
80.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
70.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
60.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
50.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
40.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
30.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
20.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
10.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)

*** VERO BEACH FRAME & COMB. CYCLE - FINE GRID VB24HR94.DAT ***

* SECOND HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS .00000 AND OCCURRED AT (3400.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 3200.0	3300.0	3400.0
360.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
350.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
340.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
330.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
320.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
310.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
300.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
290.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
280.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
270.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
260.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
250.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
240.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
230.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
220.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
210.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
200.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
190.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
180.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
170.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
160.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
150.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
140.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
130.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
120.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
110.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
100.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
90.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
80.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
70.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
60.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
50.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
40.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
30.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
20.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)
10.0 /	.00000 (0, 0)	.00000 (0, 0)	.00000 (0, 0)

RUN ENDED ON 03-13-90 AT 17:09:46

ISCST - VERSION 3.4 (DATED 88348)

IBM-PC VERSION (1.64)

SERIAL NUMBER 5056 SOLD TO BLACK & VEATCH
RUN BEGAN ON 03-13-90 AT 20:16:06

NOTE THAT THE BUILDING DIMENSIONS ON CARD 6,1 FOR SOURCE NO. 1 DO NOT MEET THE SCHULMAN-SCIRE CRITERIA. THEREFORE, DIRECTION SPECIFIC BUILDING DIMENSIONS WILL NOT BE USED BY THE MODEL.

VERO BEACH FRAME 6 COMB. CYCLE - FINE GRID VBANN82.DAT

CALCULATE (CONCENTRATION=1,DEPOSITION=2)	ISW(1) = 1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)	ISW(2) = 2
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)	ISW(3) = 1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)	ISW(4) = 0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)	ISW(5) = 0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)	ISW(6) = 1
COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)	
WITH THE FOLLOWING TIME PERIODS:	
HOURLY (YES=1,NO=0)	ISW(7) = 0
2-HOUR (YES=1,NO=0)	ISW(8) = 0
3-HOUR (YES=1,NO=0)	ISW(9) = 0
4-HOUR (YES=1,NO=0)	ISW(10) = 0
6-HOUR (YES=1,NO=0)	ISW(11) = 0
8-HOUR (YES=1,NO=0)	ISW(12) = 0
12-HOUR (YES=1,NO=0)	ISW(13) = 0
24-HOUR (YES=1,NO=0)	ISW(14) = 0
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) = 1
PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE	
SPECIFIED BY ISW(7) THROUGH ISW(14):	
DAILY TABLES (YES=1,NO=0)	ISW(16) = 0
HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)	ISW(17) = 0
MAXIMUM 50 TABLES (YES=1,NO=0)	ISW(18) = 0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)	ISW(19) = 1
RURAL-URBAN OPTION (RU.=0,UR. MODE 1=1,UR. MODE 2=2,UR. MODE 3=3)	ISW(20) = 0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(21) = 1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(22) = 1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)	ISW(23) = 0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)	ISW(24) = 1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)	ISW(25) = 2
PROGRAM USES BUOYANCY INDUCED DISPERSION (YES=1,NO=2)	ISW(26) = 1
CONCENTRATIONS DURING CALM PERIODS SET = 0 (YES=1,NO=2)	ISW(27) = 1
REG. DEFAULT OPTION CHOSEN (YES=1,NO=2)	ISW(28) = 1
TYPE OF POLLUTANT TO BE MODELLED (1=SO2,2=OTHER)	ISW(29) = 1
DEBUG OPTION CHOSEN (YES=1,NO=2)	ISW(30) = 2
ABOVE GROUND (FLAGPOLE) RECEPTORS USED (YES=1,NO=0)	ISW(31) = 0
NUMBER OF INPUT SOURCES	NSOURC = 1
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)	NGROUP = 0
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)	IPERD = 0
NUMBER OF X (RANGE) GRID VALUES	NXPNTS = 8
NUMBER OF Y (THETA) GRID VALUES	NYPNTS = 36
NUMBER OF DISCRETE RECEPTORS	NXWYPT = 0
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	TK = .10000E+07
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED	ZR = 10.00 METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET = 9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION	DECAY = .000000E+00
SURFACE STATION NO.	ISS = 12844
YEAR OF SURFACE DATA	ISY = 82
UPPER AIR STATION NO.	IUS = 12844
YEAR OF UPPER AIR DATA	IUY = 82
ALLOCATED DATA STORAGE	LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT = 1195 WORDS

*** VERO BEACH FRAME 6 COMB. CYCLE - FINE GRID   VBANN82.DAT ***

*** METEOROLOGICAL DAYS TO BE PROCESSED ***
(IF=1)

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

*** 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	WIND SPEED CATEGORY					
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	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

*** VERO BEACH FRAME 6 COMB. CYCLE - FINE GRID VBANN82.DAT ***

X,Y-COORDINATES OF THE CENTER OF THE POLAR RECEPTOR GRID (METERS) = (0., 0.)

*** RANGES OF POLAR GRID SYSTEM ***
(METERS)

1800.0, 1900.0, 2100.0, 2200.0, 2300.0, 2400.0, 2600.0, 2700.0,

*** RADIAL ANGLES OF POLAR GRID SYSTEM ***

(DEGREES)

10.0, 20.0, 30.0, 40.0, 50.0, 60.0, 70.0, 80.0, 90.0, 100.0,
110.0, 120.0, 130.0, 140.0, 150.0, 160.0, 170.0, 180.0, 190.0, 200.0,
210.0, 220.0, 230.0, 240.0, 250.0, 260.0, 270.0, 280.0, 290.0, 300.0,
310.0, 320.0, 330.0, 340.0, 350.0, 360.0,

*** SOURCE DATA ***

SOURCE NUMBER	T Y P E	W A K E	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (GRAMS/SEC) TYPE=2 (GRAMS/SEC) *PER METER**2	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	HEIGHT (METERS)	TEMP. TYPE=0 (DEG.K); VERT.DIM TYPE=1 (METERS)	EXIT VEL. TYPE=0 (M/SEC); HORZ.DIM TYPE=1,2 (METERS)	DIAMETER TYPE=0 (METERS)	BLDG. HEIGHT TYPE=0 (METERS)	BLDG. LENGTH TYPE=0 (METERS)	BLDG. WIDTH TYPE=0 (METERS)
1	0	0	0	.15057E+02	.0	.0	.0	38.10	416.48	27.50	2.80	18.29	81.65	81.65

* CALM HOURS (=1) FOR DAY	1 *	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	2 *	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	6 *	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	7 *	1	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	8 *	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
* CALM HOURS (=1) FOR DAY	10 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	11 *	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	12 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0
* CALM HOURS (=1) FOR DAY	13 *	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY	16 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0
* CALM HOURS (=1) FOR DAY	17 *	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
* CALM HOURS (=1) FOR DAY	18 *	0	0	1	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	
* CALM HOURS (=1) FOR DAY	19 *	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	
* CALM HOURS (=1) FOR DAY	20 *	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	21 *	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
* CALM HOURS (=1) FOR DAY	22 *	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	25 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
* CALM HOURS (=1) FOR DAY	37 *	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
* CALM HOURS (=1) FOR DAY	41 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
* CALM HOURS (=1) FOR DAY	42 *	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	43 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	49 *	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
* CALM HOURS (=1) FOR DAY	50 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	
* CALM HOURS (=1) FOR DAY	51 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	54 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
* CALM HOURS (=1) FOR DAY	55 *	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	56 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
* CALM HOURS (=1) FOR DAY	57 *	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	62 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
* CALM HOURS (=1) FOR DAY	63 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
* CALM HOURS (=1) FOR DAY	64 *	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
* CALM HOURS (=1) FOR DAY	65 *	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	70 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
* CALM HOURS (=1) FOR DAY	71 *	0	0	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	72 *	1	1	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	73 *	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	75 *	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	76 *	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	77 *	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	79 *	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	80 *	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	81 *	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	83 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
* CALM HOURS (=1) FOR DAY	84 *	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
* CALM HOURS (=1) FOR DAY	95 *	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	99 *	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	100 *	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	104 *	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY	105 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	
* CALM HOURS (=1) FOR DAY	108 *	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		

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* CALM HOURS (=1) FOR DAY 109 * 0 0 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 111 * 0 0 0 0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 112 * 0 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 113 * 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 116 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0
* CALM HOURS (=1) FOR DAY 117 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0
* CALM HOURS (=1) FOR DAY 118 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0
* CALM HOURS (=1) FOR DAY 130 * 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 141 * 0 0 0 0 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 142 * 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 144 * 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 145 * 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 1 0 0 0
* CALM HOURS (=1) FOR DAY 146 * 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 147 * 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 148 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0
* CALM HOURS (=1) FOR DAY 149 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0
* CALM HOURS (=1) FOR DAY 150 * 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 152 * 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 1 0 0 0
* CALM HOURS (=1) FOR DAY 155 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0
* CALM HOURS (=1) FOR DAY 157 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0
* CALM HOURS (=1) FOR DAY 158 * 0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 159 * 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
* CALM HOURS (=1) FOR DAY 160 * 1 1 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 161 * 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 164 * 0 0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0
* CALM HOURS (=1) FOR DAY 165 * 0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 166 * 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 168 * 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 174 * 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 175 * 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 1
* CALM HOURS (=1) FOR DAY 176 * 0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 1 0 1
* CALM HOURS (=1) FOR DAY 177 * 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0
* CALM HOURS (=1) FOR DAY 178 * 1 1 0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
* CALM HOURS (=1) FOR DAY 179 * 1 0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 180 * 1 0 1 0 1 1 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 181 * 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 182 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 1
* CALM HOURS (=1) FOR DAY 184 * 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 185 * 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 186 * 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 187 * 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 193 * 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 194 * 0 0 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 195 * 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0
* CALM HOURS (=1) FOR DAY 196 * 1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 197 * 1 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 198 * 0 0 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 199 * 1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
* CALM HOURS (=1) FOR DAY 200 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0
* CALM HOURS (=1) FOR DAY 201 * 0 0 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 202 * 1 1 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 203 * 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 204 * 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0
* CALM HOURS (=1) FOR DAY 205 * 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 206 * 0 0 0 1 1 1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 1 0 0 0
* CALM HOURS (=1) FOR DAY 207 * 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0
* CALM HOURS (=1) FOR DAY 208 * 1 1 0 0 1 1 0 1 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 209 * 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
* CALM HOURS (=1) FOR DAY 210 * 0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 212 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1
* CALM HOURS (=1) FOR DAY 213 * 0 0 0 0 0 0 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 215 * 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1
* CALM HOURS (=1) FOR DAY 216 * 0 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 217 * 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 218 * 0 1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
* CALM HOURS (=1) FOR DAY 227 * 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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* CALM HOURS (=1) FOR DAY 224 *	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	0
* CALM HOURS (=1) FOR DAY 225 *	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
* CALM HOURS (=1) FOR DAY 226 *	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
* CALM HOURS (=1) FOR DAY 227 *	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
* CALM HOURS (=1) FOR DAY 228 *	1	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0
* CALM HOURS (=1) FOR DAY 229 *	1	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 230 *	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 231 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
* CALM HOURS (=1) FOR DAY 232 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
* CALM HOURS (=1) FOR DAY 233 *	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
* CALM HOURS (=1) FOR DAY 234 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
* CALM HOURS (=1) FOR DAY 235 *	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 236 *	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 237 *	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 238 *	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 239 *	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 240 *	1	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 241 *	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 242 *	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 245 *	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 246 *	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 247 *	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1
* CALM HOURS (=1) FOR DAY 248 *	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
* CALM HOURS (=1) FOR DAY 249 *	1	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 250 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 251 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
* CALM HOURS (=1) FOR DAY 252 *	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 253 *	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
* CALM HOURS (=1) FOR DAY 254 *	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 257 *	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 260 *	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 261 *	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
* CALM HOURS (=1) FOR DAY 262 *	0	0	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0
* CALM HOURS (=1) FOR DAY 263 *	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* CALM HOURS (=1) FOR DAY 264 *	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
* CALM HOURS (=1) FOR DAY 265 *	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	
* CALM HOURS (=1) FOR DAY 266 *	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY 268 *	0	1	0	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	
* CALM HOURS (=1) FOR DAY 269 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
* CALM HOURS (=1) FOR DAY 270 *	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	
* CALM HOURS (=1) FOR DAY 271 *	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY 273 *	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY 274 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	
* CALM HOURS (=1) FOR DAY 275 *	0	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY 277 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	
* CALM HOURS (=1) FOR DAY 278 *	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	
* CALM HOURS (=1) FOR DAY 279 *	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY 282 *	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY 283 *	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY 287 *	1	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY 295 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY 296 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY 305 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
* CALM HOURS (=1) FOR DAY 306 *	1	1	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0		
* CALM HOURS (=1) FOR DAY 308 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	
* CALM HOURS (=1) FOR DAY 317 *	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY 318 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0		
* CALM HOURS (=1) FOR DAY 319 *	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
* CALM HOURS (=1) FOR DAY 321 *	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
* CALM HOURS (=1) FOR DAY 323 *	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	
* CALM HOURS (=1) FOR DAY 324 *	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY 327 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
* CALM HOURS (=1) FOR DAY 328 *	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	
* CALM HOURS (=1) FOR DAY 329 *	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* CALM HOURS (=1) FOR DAY 333 *	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1		
* CALM HOURS (=1) FOR DAY 334 *	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

```
# CALM HOURS (=1) FOR DAY 340 #  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  0  1  1
# CALM HOURS (=1) FOR DAY 341 #  1  0  0  0  1  1  1  1  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
# CALM HOURS (=1) FOR DAY 345 #  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
# CALM HOURS (=1) FOR DAY 354 #  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  0  0
# CALM HOURS (=1) FOR DAY 355 #  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  0  0  0
# CALM HOURS (=1) FOR DAY 363 #  0  1  1  1  1  1  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
# CALM HOURS (=1) FOR DAY 364 #  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
# CALM HOURS (=1) FOR DAY 365 #  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

*** VERO BEACH FRAME 6 COMB. CYCLE - FINE GRID VBANN82.DAT ***

* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS .44048 AND OCCURRED AT (2200.0, 310.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1800.0	1900.0	2100.0	2200.0	2300.0	2400.0	2600.0	2700.0
360.0 /	.10400	.10888	.11710	.12049	.12352	.12624	.13084	.13279
350.0 /	.13666	.14148	.14908	.15199	.15446	.15655	.15978	.16101
340.0 /	.17600	.18008	.18564	.18735	.18855	.18930	.18980	.18966
330.0 /	.23140	.23473	.23816	.23859	.23844	.23782	.23557	.23409
320.0 /	.35848	.36400	.37016	.37130	.37155	.37109	.36856	.36672
310.0 /	.42817	.43396	.43980	.44048	.44016	.43905	.43512	.43256
300.0 /	.37656	.38116	.38524	.38532	.38451	.38301	.37853	.37577
290.0 /	.28946	.29293	.29599	.29604	.29538	.29417	.29052	.28826
280.0 /	.31826	.32461	.33288	.33521	.33665	.33735	.33696	.33607
270.0 /	.33716	.34622	.35942	.36396	.36741	.36992	.37263	.37302
260.0 /	.30010	.31046	.32693	.33330	.33864	.34306	.34951	.35171
250.0 /	.23921	.24845	.26354	.26956	.27473	.27913	.28588	.28836
240.0 /	.19769	.20502	.21665	.22112	.22485	.22791	.23230	.23373
230.0 /	.15860	.16493	.17515	.17916	.18254	.18537	.18955	.19100
220.0 /	.10620	.11025	.11685	.11948	.12173	.12362	.12648	.12751
210.0 /	.06621	.06846	.07200	.07334	.07445	.07534	.07660	.07699
200.0 /	.05120	.05305	.05608	.05730	.05836	.05927	.06072	.06128
190.0 /	.05156	.05319	.05577	.05677	.05762	.05833	.05940	.05979
180.0 /	.06156	.06390	.06777	.06935	.07075	.07199	.07408	.07496
170.0 /	.05826	.06014	.06316	.06434	.06536	.06625	.06769	.06828
160.0 /	.07095	.07385	.07873	.08075	.08257	.08423	.08709	.08833
150.0 /	.06860	.07130	.07572	.07750	.07906	.08044	.08273	.08368
140.0 /	.06725	.07023	.07527	.07738	.07928	.08102	.08404	.08535
130.0 /	.06576	.06798	.07155	.07294	.07417	.07526	.07711	.07789
120.0 /	.05719	.05867	.06081	.06154	.06212	.06256	.06318	.06337
110.0 /	.04414	.04510	.04640	.04678	.04706	.04723	.04738	.04737
100.0 /	.04285	.04406	.04596	.04669	.04732	.04788	.04884	.04924
90.0 /	.04271	.04357	.04477	.04516	.04546	.04570	.04604	.04616
80.0 /	.04387	.04456	.04544	.04568	.04583	.04592	.04596	.04595
70.0 /	.05398	.05452	.05483	.05469	.05442	.05405	.05310	.05256
60.0 /	.06343	.06432	.06521	.06530	.06522	.06503	.06437	.06395
50.0 /	.07187	.07314	.07476	.07518	.07544	.07558	.07557	.07547
40.0 /	.05271	.05384	.05559	.05624	.05681	.05731	.05813	.05848
30.0 /	.04371	.04465	.04602	.04649	.04686	.04716	.04758	.04772
20.0 /	.04820	.04985	.05246	.05346	.05432	.05506	.05622	.05668
10.0 /	.06255	.06514	.06942	.07113	.07264	.07397	.07617	.07708

RUN ENDED ON 03-13-90 AT 20:44:30

PROCESS STARTING TIME: 14:39:32
DATE: 6/ 6/1990

1

*** Clay Drier ***

CALCULATE (CONCENTRATION=1,DEPOSITION=2)	ISW(1) = 1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)	ISW(2) = 4
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)	ISW(3) = 1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)	ISW(4) = 0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)	ISW(5) = 0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)	ISW(6) = 2
COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)	
WITH THE FOLLOWING TIME PERIODS:	
HOURLY (YES=1,NO=0)	ISW(7) = 1
2-HOUR (YES=1,NO=0)	ISW(8) = 0
3-HOUR (YES=1,NO=0)	ISW(9) = 0
4-HOUR (YES=1,NO=0)	ISW(10) = 0
6-HOUR (YES=1,NO=0)	ISW(11) = 0
8-HOUR (YES=1,NO=0)	ISW(12) = 0
12-HOUR (YES=1,NO=0)	ISW(13) = 0
24-HOUR (YES=1,NO=0)	ISW(14) = 0
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) = 0
PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE	
SPECIFIED BY ISW(7) THROUGH ISW(14):	
DAILY TABLES (YES=1,NO=0)	ISW(16) = 0
HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)	ISW(17) = 1
MAXIMUM 50 TABLES (YES=1,NO=0)	ISW(18) = 0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)	ISW(19) = 2
RURAL-URBAN OPTION (RU.=0,UR. MODE 1=1,UR. MODE 2=2,UR. MODE 3=3)	ISW(20) = 0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(21) = 1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(22) = 1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)	ISW(23) = 0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)	ISW(24) = 1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)	ISW(25) = 2
PROGRAM USES BUOYANCY INDUCED DISPERSION (YES=1,NO=2)	ISW(26) = 1
CONCENTRATIONS DURING CALM PERIODS SET = 0 (YES=1,NO=2)	ISW(27) = 2
REG. DEFAULT OPTION CHOSEN (YES=1,NO=2)	ISW(28) = 2
TYPE OF POLLUTANT TO BE MODELLED (1=SO2,2=OTHER)	ISW(29) = 1
DEBUG OPTION CHOSEN (YES=1,NO=2)	ISW(30) = 2
ABOVE GROUND (FLAGPOLE) RECEPTORS USED (YES=1,NO=0)	ISW(31) = 0
NUMBER OF INPUT SOURCES	NSOURC = 4
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)	NGROUP = 0
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)	IPERD = 0
NUMBER OF X (RANGE) GRID VALUES	NXPNTS = 30
NUMBER OF Y (THETA) GRID VALUES	NYPNTS = 1
NUMBER OF DISCRETE RECEPTORS	NXWYPT = 0
NUMBER OF HOURS PER DAY IN METEOROLOGICAL DATA	NHOURS = 24
NUMBER OF DAYS OF METEOROLOGICAL DATA	NDAYS = 2
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	TK =.10000E+07
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED	ZR = 10.00 METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET = 5
ALLOCATED DATA STORAGE	LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT = 1389 WORDS

1

*** Clay Drier ***

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** RANGES OF POLAR GRID SYSTEM ***

(METERS)

25.0, 50.0, 75.0, 100.0, 200.0, 300.0, 400.0, 500.0, 600.0, 700.0,
800.0, 900.0, 1000.0, 1100.0, 1200.0, 1300.0, 1400.0, 1500.0, 1600.0, 1700.0,
1800.0, 1900.0, 2000.0, 2100.0, 2200.0, 2750.0, 3000.0, 3500.0, 4000.0, 4500.0,

*** RADIAL ANGLES OF POLAR GRID SYSTEM ***

(DEGREES)

360.0,

1

*** Clay Drier ***

*** SOURCE DATA ***

SOURCE NUMBER	T Y P E	W A K E	NUMBER PART. CATS.	EMISSION RATE TYPE=2 X *PER METER**2	Y (METERS)	ELEV. (METERS)	BASE HEIGHT (METERS)	TEMP. TYPE=1 (DEG.K);	EXIT VEL. TYPE=0 (M/SEC);	VERT.DIM TYPE=1,2 (METERS)	HORZ.DIM TYPE=0 (METERS)	BLDG. DIAMETER TYPE=0 (METERS)	BLDG. HEIGHT TYPE=0 (METERS)	BLDG. LENGTH TYPE=0 (METERS)	BLDG. WIDTH (METERS)
1	0	0 0	0	.45000E+01	.0	.0	.0	10.06	389.00	15.85	.70	.00	.00	.00	
2	0	0 0	0	.42700E+01	.0	.0	.0	12.19	428.00	15.54	.43	.00	.00	.00	
3	0	0 0	0	.61400E+01	.0	.0	.0	12.19	405.00	28.65	.46	.00	.00	.00	
4	0	0 0	0	.45100E+01	.0	.0	.0	10.06	389.00	15.85	.70	.00	.00	.00	

1

MET. DATA
DAY 1

*** Clay Drier ***

SO2

* METEOROLOGICAL DATA FOR DAY 1 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	360.0	1.00	1000.0	293.0	.0000	1	.0700	.000000E+00
2	360.0	1.50	1000.0	293.0	.0000	1	.0700	.000000E+00
3	360.0	2.00	1000.0	293.0	.0000	1	.0700	.000000E+00
4	360.0	2.50	1000.0	293.0	.0000	1	.0700	.000000E+00
5	360.0	3.00	1000.0	293.0	.0000	1	.0700	.000000E+00
6	360.0	1.00	1000.0	293.0	.0000	2	.0700	.000000E+00
7	360.0	1.50	1000.0	293.0	.0000	2	.0700	.000000E+00
8	360.0	2.00	1000.0	293.0	.0000	2	.0700	.000000E+00
9	360.0	2.50	1000.0	293.0	.0000	2	.0700	.000000E+00
10	360.0	3.00	1000.0	293.0	.0000	2	.0700	.000000E+00
11	360.0	4.00	1000.0	293.0	.0000	2	.0700	.000000E+00
12	360.0	5.00	1000.0	293.0	.0000	2	.0700	.000000E+00
13	360.0	1.00	1000.0	293.0	.0000	3	.1000	.000000E+00
14	360.0	1.50	1000.0	293.0	.0000	3	.1000	.000000E+00
15	360.0	2.00	1000.0	293.0	.0000	3	.1000	.000000E+00
16	360.0	2.50	1000.0	293.0	.0000	3	.1000	.000000E+00

17	360.0	3.00	1000.0	293.0	.0000	3	.1000	.000000E+00
18	360.0	4.00	1000.0	293.0	.0000	3	.1000	.000000E+00
19	360.0	5.00	1000.0	293.0	.0000	3	.1000	.000000E+00
20	360.0	7.00	1000.0	293.0	.0000	3	.1000	.000000E+00
21	360.0	10.00	1000.0	293.0	.0000	3	.1000	.000000E+00
22	360.0	12.00	1000.0	293.0	.0000	3	.1000	.000000E+00
23	360.0	15.00	1000.0	293.0	.0000	3	.1000	.000000E+00
24	360.0	20.00	1000.0	293.0	.0000	3	.1000	.000000E+00

1 MET. DATA
DAY 2

*** Clay Drier ***

* METEOROLOGICAL DATA FOR DAY 2 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	360.0	1.00	1000.0	293.0	.0000	4	.1500	.000000E+00
2	360.0	1.50	1000.0	293.0	.0000	4	.1500	.000000E+00
3	360.0	2.00	1000.0	293.0	.0000	4	.1500	.000000E+00
4	360.0	2.50	1000.0	293.0	.0000	4	.1500	.000000E+00
5	360.0	3.00	1000.0	293.0	.0000	4	.1500	.000000E+00
6	360.0	4.00	1000.0	293.0	.0000	4	.1500	.000000E+00
7	360.0	5.00	1000.0	293.0	.0000	4	.1500	.000000E+00
8	360.0	6.00	1000.0	293.0	.0000	4	.1500	.000000E+00
9	360.0	7.00	1000.0	293.0	.0000	4	.1500	.000000E+00
10	360.0	8.00	1000.0	293.0	.0000	4	.1500	.000000E+00
11	360.0	10.00	1000.0	293.0	.0000	4	.1500	.000000E+00
12	360.0	12.00	1000.0	293.0	.0000	4	.1500	.000000E+00
13	360.0	15.00	1000.0	293.0	.0000	4	.1500	.000000E+00
14	360.0	20.00	1000.0	293.0	.0000	4	.1500	.000000E+00
15	360.0	2.00	1000.0	293.0	.0200	5	.3500	.000000E+00
16	360.0	2.50	1000.0	293.0	.0200	5	.3500	.000000E+00
17	360.0	3.00	1000.0	293.0	.0200	5	.3500	.000000E+00
18	360.0	4.00	1000.0	293.0	.0200	5	.3500	.000000E+00
19	360.0	5.00	1000.0	293.0	.0200	5	.3500	.000000E+00
20	360.0	1.00	1000.0	293.0	.0350	6	.5500	.000000E+00
21	360.0	1.50	1000.0	293.0	.0350	6	.5500	.000000E+00
22	360.0	2.00	1000.0	293.0	.0350	6	.5500	.000000E+00
23	360.0	2.50	1000.0	293.0	.0350	6	.5500	.000000E+00
24	360.0	3.00	1000.0	293.0	.0350	6	.5500	.000000E+00

1 HIGH
1-HR
SGROUP# 1

*** Clay Drier ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 1003.84000 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 25.0	50.0	75.0	100.0	200.0
360.0 /	.00058 (1,24)	50.75144 (1,24)	380.52690 (1,24)	662.77390 (1,12)	1003.84000 (1,19)

1 HIGH
1-HR
SGROUP# 1

*** Clay Drier ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 1003.84000 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 300.0	400.0	500.0	600.0	700.0
360.0 /	975.66010 (1,18)	896.58730 (2, 7)	862.64040 (2, 6)	806.76140 (2, 5)	763.12480 (2, 5)

1 HIGH 1-HR SGROUP# 1

*** Clay Drier ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 1003.84000 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 800.0	900.0	1000.0	1100.0	1200.0
360.0 /	716.34390 (2, 4)	668.53210 (2, 4)	633.64110 (2, 3)	594.23610 (2, 3)	556.36040 (2, 3)

1 HIGH 1-HR SGROUP# 1

*** Clay Drier ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 1003.84000 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1300.0	1400.0	1500.0	1600.0	1700.0
360.0 /	526.23110 (2, 2)	503.02390 (2, 2)	480.10350 (2, 2)	457.85060 (2, 2)	436.49070 (2, 2)

1 HIGH 1-HR SGROUP# 1

*** Clay Drier ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 1003.84000 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1800.0	1900.0	2000.0	2100.0	2200.0
360.0 /	444.18540 (2,20)	463.69700 (2,20)	480.76190 (2,20)	490.65880 (2,20)	498.87160 (2,20)

1 HIGH

1-HR
SGROUP# 1

*** Clay Drier ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 1003.84000 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 2750.0	3000.0	3500.0	4000.0	4500.0
360.0 /	520.71560 (2,20)	521.18550 (2,20)	503.43940 (2,20)	481.50800 (2,20)	458.13670 (2,20)

1 2ND HIGH
1-HR
SGROUP# 1

*** Clay Drier ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 998.56480 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 25.0	50.0	75.0	100.0	200.0
360.0 /	.00014 (1, 5)	23.95274 (1, 5)	303.79350 (1,23)	654.61160 (1,24)	998.56480 (1,20)

1 2ND HIGH
1-HR
SGROUP# 1

*** Clay Drier ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 998.56480 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 300.0	400.0	500.0	600.0	700.0
360.0 /	961.90780 (1,17)	884.69980 (2, 8)	840.83350 (2, 7)	799.40450 (2, 6)	752.98320 (2, 4)

1 2ND HIGH
1-HR
SGROUP# 1

*** Clay Drier ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 998.56480 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 800.0	900.0	1000.0	1100.0	1200.0

360.0 / 703.46880 (2, 5) 665.96540 (2, 3) 617.66260 (2, 4) 570.71060 (2, 2) 549.11210 (2, 2)

1 2ND HIGH 1-HR SGROUP# 1

*** Clay Drier ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 998.56480 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1300.0	1400.0	1500.0	1600.0	1700.0
360.0 /	520.71340 (2, 3)	487.57350 (2, 3)	456.98360 (2, 3)	428.85990 (2, 3)	422.12310 (2,20)

1 2ND HIGH 1-HR SGROUP# 1

*** Clay Drier ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 998.56480 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1800.0	1900.0	2000.0	2100.0	2200.0
360.0 /	418.17600 (2,21)	431.05470 (2,21)	441.56810 (2,21)	446.21600 (2,21)	449.44000 (2,21)

1 2ND HIGH 1-HR SGROUP# 1

*** Clay Drier ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 998.56480 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 2750.0	3000.0	3500.0	4000.0	4500.0
360.0 /	448.94500 (2,21)	442.05040 (2,21)	416.98250 (2,21)	391.16250 (2,21)	366.22530 (2,21)

PROCESS ENDING TIME: 14:39:49
DATE: 6/ 6/1990

PROCESS STARTING TIME: 14:32:58
DATE: 6/ 6/1990

1

*** Clay Drier ***

CALCULATE (CONCENTRATION=1,DEPOSITION=2)	ISW(1) =	1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)	ISW(2) =	4
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)	ISW(3) =	1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)	ISW(4) =	0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)	ISW(5) =	0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)	ISW(6) =	2
COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)		
WITH THE FOLLOWING TIME PERIODS:		
HOURLY (YES=1,NO=0)	ISW(7) =	1
2-HOUR (YES=1,NO=0)	ISW(8) =	0
3-HOUR (YES=1,NO=0)	ISW(9) =	0
4-HOUR (YES=1,NO=0)	ISW(10) =	0
6-HOUR (YES=1,NO=0)	ISW(11) =	0
8-HOUR (YES=1,NO=0)	ISW(12) =	0
12-HOUR (YES=1,NO=0)	ISW(13) =	0
24-HOUR (YES=1,NO=0)	ISW(14) =	0
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) =	0
PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE		
SPECIFIED BY ISW(7) THROUGH ISW(14):		
DAILY TABLES (YES=1,NO=0)	ISW(16) =	0
HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)	ISW(17) =	1
MAXIMUM 50 TABLES (YES=1,NO=0)	ISW(18) =	0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)	ISW(19) =	2
RURAL-URBAN OPTION (RU.=0,UR. MODE 1=1,UR. MODE 2=2,UR. MODE 3=3)	ISW(20) =	0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(21) =	1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(22) =	1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)	ISW(23) =	0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)	ISW(24) =	1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)	ISW(25) =	2
PROGRAM USES BUOYANCY INDUCED DISPERSION (YES=1,NO=2)	ISW(26) =	1
CONCENTRATIONS DURING CALM PERIODS SET = 0 (YES=1,NO=2)	ISW(27) =	2
REG. DEFAULT OPTION CHOSEN (YES=1,NO=2)	ISW(28) =	2
TYPE OF POLLUTANT TO BE MODELLED (1=SO2,2=OTHER)	ISW(29) =	1
DEBUG OPTION CHOSEN (YES=1,NO=2)	ISW(30) =	2
ABOVE GROUND (FLAGPOLE) RECEPTORS USED (YES=1,NO=0)	ISW(31) =	0
NUMBER OF INPUT SOURCES	NSOURC =	4
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)	NGROUP =	0
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)	IPERD =	0
NUMBER OF X (RANGE) GRID VALUES	NXPNTS =	30
NUMBER OF Y (THETA) GRID VALUES	NYPNTS =	1
NUMBER OF DISCRETE RECEPTORS	NXWYPT =	0
NUMBER OF HOURS PER DAY IN METEOROLOGICAL DATA	NHOURS =	24
NUMBER OF DAYS OF METEOROLOGICAL DATA	NDAYS =	2
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	TK =	.10000E+07
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED	ZR =	10.00 METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET =	5
ALLOCATED DATA STORAGE	LIMIT =	43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT =	1389 WORDS

1

*** Clay Drier ***

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** RANGES OF POLAR GRID SYSTEM ***

(METERS)

25.0,	50.0,	75.0,	100.0,	200.0,	300.0,	400.0,	500.0,	600.0,	700.0,
800.0,	900.0,	1000.0,	1100.0,	1200.0,	1300.0,	1400.0,	1500.0,	1600.0,	1700.0,
1800.0,	1900.0,	2000.0,	2100.0,	2200.0,	2750.0,	3000.0,	3500.0,	4000.0,	4500.0,

*** RADIAL ANGLES OF POLAR GRID SYSTEM ***

(DEGREES)

360.0,

1

*** Clay Drier ***

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (DEG.K); (M/SEC); TYPE=2 *PER METER**2	X (METERS)	Y (METERS)	ELEV. (METERS)	BASE HEIGHT (METERS)	TYPE=1 (METERS)	TEMP. TYPE=0 VERT.DIM TYPE=1,2 (METERS)	EXIT VEL. TYPE=0 HORZ.DIM TYPE=0 (METERS)	BLDG. DIAMETER TYPE=0 (METERS)	BLDG. HEIGHT TYPE=0 (METERS)	BLDG. LENGTH TYPE=0 (METERS)	WIDTH (METERS)
1	0	0	0	.39500E+01	.0	.0	.0	10.06	389.00	15.85	.70	.00	.00	.00	
2	0	0	0	.11500E+01	.0	.0	.0	12.19	428.00	15.54	.43	.00	.00	.00	
3	0	0	0	.27100E+01	.0	.0	.0	12.19	405.00	28.65	.46	.00	.00	.00	
4	0	0	0	.78000E+00	.0	.0	.0	10.06	389.00	15.85	.70	.00	.00	.00	

1

MET. DATA
DAY 1

*** Clay Drier ***

* METEOROLOGICAL DATA FOR DAY 1 *

150
200
300
400
500
600
700
800

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	360.0	1.00	1000.0	293.0	.0000	1	.0700	.000000E+00
2	360.0	1.50	1000.0	293.0	.0000	1	.0700	.000000E+00
3	360.0	2.00	1000.0	293.0	.0000	1	.0700	.000000E+00
4	360.0	2.50	1000.0	293.0	.0000	1	.0700	.000000E+00
5	360.0	3.00	1000.0	293.0	.0000	1	.0700	.000000E+00
6	360.0	1.00	1000.0	293.0	.0000	2	.0700	.000000E+00
7	360.0	1.50	1000.0	293.0	.0000	2	.0700	.000000E+00
8	360.0	2.00	1000.0	293.0	.0000	2	.0700	.000000E+00
9	360.0	2.50	1000.0	293.0	.0000	2	.0700	.000000E+00
10	360.0	3.00	1000.0	293.0	.0000	2	.0700	.000000E+00
11	360.0	4.00	1000.0	293.0	.0000	2	.0700	.000000E+00
12	360.0	5.00	1000.0	293.0	.0000	2	.0700	.000000E+00
13	360.0	1.00	1000.0	293.0	.0000	3	.1000	.000000E+00
14	360.0	1.50	1000.0	293.0	.0000	3	.1000	.000000E+00
15	360.0	2.00	1000.0	293.0	.0000	3	.1000	.000000E+00
16	360.0	2.50	1000.0	293.0	.0000	3	.1000	.000000E+00

17	360.0	3.00	1000.0	293.0	.0000	3	.1000	.000000E+00
18	360.0	4.00	1000.0	293.0	.0000	3	.1000	.000000E+00
19	360.0	5.00	1000.0	293.0	.0000	3	.1000	.000000E+00
20	360.0	7.00	1000.0	293.0	.0000	3	.1000	.000000E+00
21	360.0	10.00	1000.0	293.0	.0000	3	.1000	.000000E+00
22	360.0	12.00	1000.0	293.0	.0000	3	.1000	.000000E+00
23	360.0	15.00	1000.0	293.0	.0000	3	.1000	.000000E+00
24	360.0	20.00	1000.0	293.0	.0000	3	.1000	.000000E+00

1 MET. DATA
DAY 2

*** Clay Drier ***

* METEOROLOGICAL DATA FOR DAY 2 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	360.0	1.00	1000.0	293.0	.0000	4	.1500	.000000E+00
2	360.0	1.50	1000.0	293.0	.0000	4	.1500	.000000E+00
3	360.0	2.00	1000.0	293.0	.0000	4	.1500	.000000E+00
4	360.0	2.50	1000.0	293.0	.0000	4	.1500	.000000E+00
5	360.0	3.00	1000.0	293.0	.0000	4	.1500	.000000E+00
6	360.0	4.00	1000.0	293.0	.0000	4	.1500	.000000E+00
7	360.0	5.00	1000.0	293.0	.0000	4	.1500	.000000E+00
8	360.0	6.00	1000.0	293.0	.0000	4	.1500	.000000E+00
9	360.0	7.00	1000.0	293.0	.0000	4	.1500	.000000E+00
10	360.0	8.00	1000.0	293.0	.0000	4	.1500	.000000E+00
11	360.0	10.00	1000.0	293.0	.0000	4	.1500	.000000E+00
12	360.0	12.00	1000.0	293.0	.0000	4	.1500	.000000E+00
13	360.0	15.00	1000.0	293.0	.0000	4	.1500	.000000E+00
14	360.0	20.00	1000.0	293.0	.0000	4	.1500	.000000E+00
15	360.0	2.00	1000.0	293.0	.0200	5	.3500	.000000E+00
16	360.0	2.50	1000.0	293.0	.0200	5	.3500	.000000E+00
17	360.0	3.00	1000.0	293.0	.0200	5	.3500	.000000E+00
18	360.0	4.00	1000.0	293.0	.0200	5	.3500	.000000E+00
19	360.0	5.00	1000.0	293.0	.0200	5	.3500	.000000E+00
20	360.0	1.00	1000.0	293.0	.0350	6	.5500	.000000E+00
21	360.0	1.50	1000.0	293.0	.0350	6	.5500	.000000E+00
22	360.0	2.00	1000.0	293.0	.0350	6	.5500	.000000E+00
23	360.0	2.50	1000.0	293.0	.0350	6	.5500	.000000E+00
24	360.0	3.00	1000.0	293.0	.0350	6	.5500	.000000E+00

1 HIGH
1-HR
SGROUP# 1

*** Clay Drier ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 434.40370 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 25.0	50.0	75.0	100.0	200.0
360.0 /	.00030 (1,24)	24.36438 (1,24)	175.33120 (1,24)	296.65980 (1,24)	434.40370 (1,20)

1 HIGH
1-HR
SGROUP# 1

*** Clay Drier ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 434.40370 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 300.0	400.0	500.0	600.0	700.0
360.0 /	419.93250 (1,18)	384.81800 (2, 7)	369.13140 (2, 6)	345.11220 (2, 6)	326.42090 (2, 5)

1 HIGH 1-HR SGROUP# 1

*** Clay Drier ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 434.40370 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 800.0	900.0	1000.0	1100.0	1200.0
360.0 /	304.95690 (2, 4)	286.56650 (2, 4)	269.12070 (2, 3)	253.60710 (2, 3)	238.38490 (2, 3)

1 HIGH 1-HR SGROUP# 1

*** Clay Drier ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 434.40370 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1300.0	1400.0	1500.0	1600.0	1700.0
360.0 /	223.84770 (2, 3)	212.66980 (2, 2)	203.77250 (2, 2)	194.98510 (2, 2)	186.43740 (2, 2)

1 HIGH 1-HR SGROUP# 1

*** Clay Drier ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 434.40370 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1800.0	1900.0	2000.0	2100.0	2200.0
360.0 /	187.79060 (2,20)	196.42600 (2,20)	204.04340 (2,20)	208.57490 (2,20)	212.38870 (2,20)

1 HIGH

*** Clay Drier ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 434.40370 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 2750.0	3000.0	3500.0	4000.0	4500.0
360.0 /	223.28960 (2,20)	224.09440 (2,20)	217.31060 (2,20)	208.50380 (2,20)	198.90410 (2,20)

1 2ND HIGH
1-HR
SGROUP# 1

*** Clay Drier ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 428.20670 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 25.0	50.0	75.0	100.0	200.0
360.0 /	.00004 (1, 5)	10.53878 (1,23)	136.98780 (1,23)	287.99110 (1,23)	428.20670 (1,19)

1 2ND HIGH
1-HR
SGROUP# 1

*** Clay Drier ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 428.20670 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 300.0	400.0	500.0	600.0	700.0
360.0 /	405.60790 (1,17)	383.63580 (2, 8)	364.35570 (2, 7)	341.74290 (2, 5)	317.57390 (2, 4)

1 2ND HIGH
1-HR
SGROUP# 1

*** Clay Drier ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 428.20670 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 800.0	900.0	1000.0	1100.0	1200.0

360.0 / 302.96710 (2, 5) 280.70130 (2, 3) 266.14350 (2, 4) 245.61710 (2, 4) 229.87160 (2, 2)

1 **BEST AVAILABLE COPY** 2ND HIGH 1-HR SGROUP# 1

*** Clay Drier ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 428.20670 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1300.0	1400.0	1500.0	1600.0	1700.0
360.0 /	221.47300 (2, 2)	210.18450 (2, 3)	197.46490 (2, 3)	185.69100 (2, 3)	178.10390 (2,20)

1 2ND HIGH 1-HR SGROUP# 1

*** Clay Drier ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 428.20670 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1800.0	1900.0	2000.0	2100.0	2200.0
360.0 /	178.42880 (2,21)	184.27470 (2,21)	189.11000 (2,21)	191.38300 (2,21)	193.03450 (2,21)

1 2ND HIGH 1-HR SGROUP# 1

*** Clay Drier ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 428.20670 AND OCCURRED AT (200.0, 360.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 2750.0	3000.0	3500.0	4000.0	4500.0
360.0 /	194.05720 (2,21)	191.52060 (2,21)	181.25690 (2,21)	170.48220 (2,21)	159.95770 (2,21)

PROCESS ENDING TIME: 14:33: 8
DATE: 6/ 6/1990