Technical Evaluation

and

Preliminary Determination

COMCO

Coal/Oil Mixture Preparation Plant

Hillsborough County, Florida

Application Number:

AC 29-39805

Florida Department of Environmental Regulation

Bureau of Air Quality Management

Central Air Permitting

April 29, 1981

Public Notice

The Department intends to issue a permit to COMCO for the construction of a coal/oil mixture preparation plant at Port Sutton, near downtown Tampa in Hillsborough County. The permit will include conditions to assure compliance with Chapter 17-2 Florida Administrative Code(F.A.C.).

Any person wishing to file comments on this proposed action may do so by submitting such comments in writing to:

Mr. John Svec
Florida Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Any comments received within thirty days after publication of this notice will be considered and noted in the Department's final determination.

Any person whose substantial interest would be affected by the Department's intended action on this permit may request an administrative hearing by filing a petition as set forth in Section 28-5.15 F.A.C. within 14 days of the date of this notice with:

Ms. Mary Clark
Office of General Counsel
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

I. PROJECT DESCRIPTION

A. Applicant:

COMCO
3201 Thirty Fourth Street South
P. O. Box 15208
St. Petersburg, Florida 33733

B. Project and Location:

The applicant proposed to construct a coal/oil mixture (COM) preparation plant at Port Sutton, near downtown Tampa, in Hillsborough County. The UTM coordinates are 361.4 km East and 3086.9 km North.

C. Process and Controls:

Coal will be received at the Port Sutton facility by rail, unloaded to an underground hopper and transferred to a storage pile via a radial stacker-conveyor. Front-end loaders will move coal from the pile to a receiving hopper from which it is conveyed to the crusher, and then transferred to a coal bunker. From this point the crushed coal is conveyed to dual pulverizing/dryer systems. Two "sweep" gas dryers fired by No. 6 fuel oil both dry the pulverized coal and pneumatically convey it through the system. The coal is then mixed 50/50 with No. 6 fuel oil and stored in an insulated COM tank which is heated by a 4.5 million BTU/hour heat transfer fluid heater (not a boiler) fired with No. 2 fuel oil. The final product is shipped out by barge.

Water spraying is proposed at fugitive emission points during coal load-in activities, except for the storage pile itself and reclamation operations by front-end loader. Coal handling from the crusher receiving hopper onward will include baghouses at all emission points.

The applicant projects an annual coal throughput of 131,000 tons per year. The optimum coal handling capability of the equipment along with the projected throughput call for three operating schedules. The pulverizing system proposed can handle only 15 tons per hour, and therefore will operate continuously year-round. Coal reclaimation from the storage pile and coal crushing activities are proposed to operate at 60 tons per hour with a maximum of 8 hours per day. Railroad unloading and storage pile load-in activities are anticipated to be 10 hours per day.

Limitations on sulfur content of the fuel oil burned in the dryers and COM tank heater are proposed as control of SO_2 emissions from combustion gases. Maximum sulfur contents of 2.5 and 1.0 percent are proposed for No. 6 and No. 2 fuel oils respectively.

II. RULE APPLICABILITY

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code.

The location of the proposed facility is in the Hillsborough County nonattainment areas for particulate matter and ozone, as well as the area of influence of the Pinellas County SO_2 nonattainment area; therefore, the project is subject to Section 17-2.17, New Source Review for Nonattainment Areas, for these pollutants. The proposed location is in an area designated "unclassifiable" for the criteria pollutant SO_2 and attainment for the remaining criteria pollutants except for particulate matter and ozone. Volatile organic compounds (VOC) emissions are subject to the provisions of 17-2.17 also, since VOCs are precursors in photochemical reactions in the atmosphere which lead to the formation of ozone.

Table II of Section 17-2.17, and the Limited New Source Review Exemption, 17-2.17(3)(a)1.a.(ii), exempts sources whose allowable emissions are less than 50 TPY from the provisions of 17-2.17(5) through (7). Therefore, the conditions of 17-2.17(4) apply, which require compliance with applicable federal New Source Performance Standards (NSPS) or Hazardous Air Pollutant Standards, or other more restrictive standards in 17-2. Section 17-2.21 also requires compliance with all applicable federal NSPS as referenced. The project is subject to the fugitive particulate provisions of 17-2.05(3).

17-2.17(1)(c)2.b. exempts minor sources in the area of influence from the provisions of Section 17-2.17. Therefore SO_2 emissions are not specifically regulated for this project under this section, as they do not exceed 250 TPY and are not defined as "major". However, the Department must still be assured that SO_2 emissions will not exceed 250 TPY, contribute to significant impact on the Pinellas County SO_2 nonattainment area or cause violations of ambient air standards and PSD increments.

III. SUMMARY OF EMISSIONS AND AIR QUALITY ANALYSIS:

A. Emission Limitations

It should be emphasized that the key emission limitation for the proposed project is the 50 TPY cutoff in Table II of Section 17-2.17. Allowable particulate (or VOC) limits over this figure would require Lowest Achievable Emission Rate (LAER) technology and offsets. The Department must be assured that the 50 TPY limit will not be exceeded.

Based on the information in the application it appears that the proposed particulate controls will be sufficient to meet the cutoff level. However, to be assured of this, specific emission limits on the coal handling baghouses will be necessary, although the NSPS requires only a 20% opacity for coal processing and handling equipment. A more stringent opacity of 5% is deemed necessary for these baghouses if visual monitoring is to be meaningful and representative of the prescribed emission limits. Coal dust controlled by the water spraying systems will be limited to 20% opacity. Dryer emissions may not exceed .031 grains/dry standard cubic foot, and 20% opacity, as specified in the federal NSPS.

In accordance with the above, particulate emissions from the baghouses shall be as follows:

Source	Standard, lb/hr (TPY)	Opacity
Coal Handling Bag 1	1.4 (2.0)	5%
Bag 2	0.1 (.1)	5%
Bag 3	0.2 (.3)	5%
Bags 4-7	0.1 (1.5)	5%
Sweep Dryers (combined)	1.1 (4.8)	20%

These emissions account for 8.7 tons per year.

Emissions from coal load-in and transfer operations are quantified and controlled as follows:

Source	Emissions, TPY	Opacity	Control Strategy
Rail Car Dump	13.1	20%	Water spraying
Transfer to Radial Conveyor	3.9	20%	Water spraying

Fugitive emissions are quanitifed and will be controlled as follows:

Pile Loading	6.6	20%	Water spraying
Wind Erosion	3.3	20%	(None - See Conclusion)
Vehicular Traffic	3.3	20%	Water spraying
Reclaim (Load-out)	3.9	20%	(None - See Conclusion)

The combined plant-wide particulate emissions (including a minute quantity from the COM tank heater) as limited will total 43.1 tons per year.

Sulfur dioxide emissions will be controlled by limiting the sulfur content and combustion rates of the fuel oils as follows:

Fuel Oil	Maximum Sulfur Content	Combustion Rate Limits
No. 2	1.0	31 gallons/hour
No. 6	2.5	68 gallons/hour

B. Air Quality Analysis:

Although the facility is considered a minor source of SO_2 (less than 250 TPY), the applicant has performed air quality analysis that shows no significant impact on the Pinellas County Nonattainment Area nor any violations of Florida ambient air quality standards or PSD increments.

The Department has reviewed the analysis and concurs with the results.

IV. CONCLUSIONS:

The emission limits proposed by the applicant will meet the federal New Source Performance Standard for coal preparation plants as well as the more stringent emission limits of the proposed permit. As mentioned earlier, individual emission limits on all baghouses and a tighter opacity limit of 5% for bags Nos. 1-7 are required to assure non-exceedance of the 50 TPY cutoff limit (Table II, Chapter 17-2.17) for plantwide particulate emissions. Such an exceedance would require LAER technology and offsets to be applied. The control equipment proposed will meet the emission standards required in the proposed permit.

Acknowledging the low emission rates from the baghouses, particulate stack sampling requirements for compliance testing is deemed inappropriate if the baghouses meet the 5% opacity limit. Dryer baghouse stack sampling shall also be waived if 5% opacity is not exceeded, depending on whether a steam plume prevents practical visible emissions testing.

Emission factors for rail car unloading and storage pile load-in and load-out operations are mostly conservative and should represent worse-case conditions. However, due to the great variance inherent in these type of factors, provisions will be made in the specific conditions to allow for additional fugitive control techniques if necessary; specifically, for the control of storage pile wind erosion and load-out by the front-end loaders, since the applicant proposed no control at these sources.

Requirements for fuel oil analysis will suffice as assurance that SO_2 emissions will not impact the Pinellas County sulfur dioxide nonattainment area or cause violations of increments or ambient air standards. A cap on fuel oil consumption firing the COM tank heater and dryers will also be required.

VOC emissions from both storage operations and combustion gases are minimal and need not be addressed here. Nitrogen oxides and carbon monoxide emissions from combustion sources are also minimal and not regulated in the permit.

The General and Specific Conditions listed in the proposed permit (attached) will assure compliance with all applicable requirements of Chapter 17-2.

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICANT: COMCO
P. O. Box 15208
St. Petersburg, Florida 33733

PERMIT/CERTIFICATION
NO. AC 29-39805

COUNTY: Hillsborough

PROJECT: Coal/oil Mixture Preparation Plant

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2 and 17-4, Florida Administrative Code. The above named applicant, hereinafter called Permittee, is hereby authorized to perform the work or operate the facility shown on the approved drawing(s), plans, documents, and specifications attached hereto and made a part hereof and specifically described as follows:

For the construction of a 30 TPH coal/oil mixture preparation plant to be located at Port Sutton, near downtown Tampa, in Hillsborough County, Florida. The UTM coordinates of the proposed plant are 361.4 km E and 3086.9 km N.

Construction shall be in accordance with the attached permit application and plans, documents, and drawings except as otherwise noted on pages 3 and 4 - "Specific Conditions".

Attachements are as follows:

1. Application to construct Air Pollution Sources, DER form 17-1.122(16).

2. Addendum to application from COMCO, dated March 4, 1981.

PERMIT NO.: AC 29-39805
APPLICANT: COMCO

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions:, and as such are binding upon the permittee and enforceable pursuant to the authority of Section 403.161(1), Florida Statutes. Permittee is hereby placed on notice that the department will review this permit periodically and may initiate court action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations indicated in the attached drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit shall constitute grounds for revocation and enforcement action by the department.

3. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information: (a) a description of and cause of non-compliance; and (b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

4. As provided in subsection 403.087(6), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

5. This permit is required to be posted in a conspicuous location at the work site or source during the entire period of construction or operation.

6. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Section 403.111, F.S.

7. In the case of an operation permit, permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

8. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant, or aquatic life or property and penalities therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, except where specifically authorized by an order from the department granting a variance or exception from department rules or state statutes.

9. This permit is not transferable. Upon sale or legal transfer of the property or facility covered by this permit, the permittee shall notify the department within thirty (30) days. The new owner must apply for a permit transfer within thirty (30) days. The permittee shall be liable for any non-compliance of the permitted source until the transferee applies for and receives a transfer of permit.

10. The permittee, by acceptance of this permit, specifically agrees to allow access to permitted source at reasonable times by department personnel presenting credentials for the purposes of inspection and testing to determine compliance with this permit and department rules.

11. This permit does not indicate a waiver of or approval of any other department permit that may be required for other aspects of the total project.

12. This permit conveys no title to land or water, nor constitutes state recognition or acknowledgement of title, and does not constitute authority for the reclamation of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

13. This permit also constitutes:

[ ] Determination of Best Available Control Technology (BACT)
[ ] Determination of Prevention of Significant Deterioration (PSD)
[ ] Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)

PERMIT NO.: AC 29-39805
APPLICANT: COMCO

SPECIFIC CONDITIONS:

1. Maximum particulate emissions from the baghouses will be as follows:

Baghouse	Emission limit, lb/h	Opacity
No. 1	1.4	5%
No. 2	0.1	5%
No. 3	0.2	5%
Nos. 4-7	0.1	5%
Sweep Dryers (combined)	1.1	20%

2. Water spraying equipment shall be employed to control fugitive particulate emissions at the following operational points: rail car dump; radial conveyor transfer; pile loading. This equipment shall be maintained in good working condition and shall be in use whenever coal handling operations are in progress. The area around the storage pile shall be watered daily or when conditions warrent, to promote dust suppression due to vehicular traffic.

3. All coal handling operations referred to in Specific Condition No. 2 will be limited to 20% opacity. This will also include storage pile wind erosion and storage pile load-out activities.

4. All baghouses will be in operation when the coinciding process equipment is in operation and need only operate at these times.

5. Fuel oil consumption for combustion and fuel oil sulfur content shall be limited as follows:

Fuel Oil	Combustion rate	Sulfur content, wt.%
No. 2	31 gallons/hour	1.0
No. 6	68 gallons/hour	2.5

Accurate and up-to-date records of fuel oil throughput and sulfur content shall be kept by COMCO and made available to the Department upon request.

6. A sampling valve or port shall be installed at convenient points in each of the fuel oil storage or piping systems to allow access for sampling of both the No. 2 and No. 6 fuel oils used for combustion in the COM tank heater and the sweep dryers.

PERMIT NO.: AC 29-39805
APPLICANT: COMCO

7. Reasonable precautions to prevent fugitive particulate emissions during construction, such as coating or spraying roads and construction sites used by contractors, will be taken by the applicant.

8. Maximum production capacity will be 30 tons per hour.

9. Construction shall reasonably conform to the plans submitted in the application.

10. The applicant shall report any delays in construction and completion of this plant to the Department's Southwest District.

11. Test procedures for compliance testing will be in accordance with the EPA methods as published in 40 CFR 60, Subpart Y. The Department will be notified 30 days in advance of the compliance test. The test will be conducted at permitted production capacity ±10%.

12. Compliance testing per EPA Method 5 for the weight emission limiting standards shall be waived for all baghouses, including dryer baghouses, where 5% opacity is not exceeded.

13. A monitoring device for measurement of dryer gas temperature shall be installed, as stated in 40 CFR 60, Subpart Y.

14. Additional controls for fugitive emissions will be required if deemed necessary upon compliance inspection by the Department representative.

15. The applicant will demonstrate compliance with the conditions of this construction permit and submit a complete application for an operating permit to the Department's Southwest District Office prior to 90 days before the expiration date of this permit. The applicant may continue to operate in compliance with all terms of this construction permit until its expiration or until issuance of an operating permit.

Expiration Date: March 31, 1982

Issued this _____ day of _____, 19_____.

_____ Pages Attached.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

_____
Signature

→P 4/8/94

Check Sheet

Company Name: Comco
Permit Number: AC 29-39805
PSD Number:
County: Hillsborough
Permit Engineer:
Others involved:

Application:
- [x] Initial Application
- [x] Incompleteness Letters
- [x] Responses
- [x] Final Application (if applicable)
- [ ] Waiver of Department Action
- [ ] Department Response

Intent:
- [x] Intent to Issue
- [x] Notice to Public
- [x] Technical Evaluation
- [ ] BACT Determination
- [x] Unsigned Permit

Attachments:
- [ ]
- [ ]
- [ ]

- [ ] Correspondence with:
  - [ ] EPA
  - [ ] Park Services
  - [ ] County
  - [ ] Other
- [x] Proof of Publication
- [ ] Petitions - (Related to extensions, hearings, etc.)

Final Determination:
- [ ] Final Determination
- [ ] Signed Permit
- [ ] BACT Determination

Post Permit Correspondence:
- [ ] Extensions
- [ ] Amendments/Modifications
- [ ] Response from EPA
- [ ] Response from County
- [ ] Response from Park Services

In the folder labeled as follows there are documents, listed below, which were not reproduced in this electronic file. Those documents can be found in the supplementary documents file drawer. Folders in that drawer are arranged alphabetically, then by permit number.

Folder Name: Comco
AC 29-39805

Period During Which DOCUMENT WAS SUBMITTED (APPLICATION, PD & TE, FINAL DETERMINATION, POST PERMIT)	Detailed Description
APP 02/16/81	1. 24"x36" Blueprint: COAL AND OIL MIXTURE MATERIAL FLOW SHEET REVISION 5
	2. 24"x36" BLUEPRINT COAL AND OIL MIXTURE MATERIAL FLOW SHEET REVISION 6

THE TAMPA TRIBUNE

Published Daily
Tampa, Hillsborough County, Florida

State of Florida
County of Hillsborough } ss.

Before the undersigned authority personally appeared J. F. Urbanski, who on oath says that he is Vice President and General Manager of The Tampa Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida; that the attached copy of advertisement being a

----------LEGAL NOTICE----------

in the matter of Notice that The Dept. of Environmental Regulation has received an application from and intends to issue a construction permit to Comco, for the purpose described herein.

was published in said newspaper in the issues of April 29, 1981

Affiant further says that the said The Tampa Tribune is a newspaper published at Tampa, in said Hillsborough County, Florida, and that the said newspaper has heretofore been continuously published in said Hillsborough County, Florida, each day and has been entered as second class mail matter at the post office in Tampa, in said Hillsborough 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.

J. F. Urbanski

Sworn to and subscribed before me, this 20th *day of* May *A.D. 19* 81

C. A. Michelle Ingram

(SEAL)

Notary Public State of Florida at Large
My Commission Expires Aug. 7, 1983.

Construction Notice

The Department of Environmental Regulation (DER) has received an Application from and intends to issue a Construction Permit to COMCO for a coal/oil mixture preparation plant at Port Sutton, near downtown Tampa, in Hillsborough Co. A Determination of Best Available Control Technology (BACT) was not required. Copies of the Application, Technical Evaluation, and DER Intent are available for inspection at the following offices:

DER, Southwest District
7601 Highway 301 N.,
Tampa

Hillsborough Co.
Environmental
Protection Commission
1900 9th Ave., Tampa

DER, Bureau of Air
Quality Mgt.
2600 Blair Stone Rd
Tallahassee, Fl 32301

Comments on this action shall be submitted in writing to John Svec of the Talla[illegible] Office, within 30 days [illegible]tice.

M2356 Apr. 29, 1981

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

April 23, 1981

The Tampa Tribune
Legal Advertising
P. O. Box 191
Tampa, Florida 33601

RE: Construction Notice
Postponement of Notice Date

Dear Sir, Madam, or Ms:

This is to confirm postponement of a construction notice that was originally to have appeared in the Tribune on April 24, 1981. The notice concerns construction of COMCO's proposed coal/oil mixture preparation plant, and was requested by the Department of Environmental Regulation.

As discussed with an employee in the legal Advertising Department by telephone on April 23, the new publication date of the notice is April 29, 1981.

Thank you for your attention to this matter.

Sincerely,

Tim Powell

Tim Powell
Bureau of Air Quality
Management, FDER

Construction Notice

The Florida Department of Environmental Regulation (DER) has received an Application from and intends to issue a Construction Permit to COMCO for the construction of a coal/oil mixture preparation plant to be located at Port Sutton, near downtown Tampa, in Hillsborough County, Florida. A Determination of Best Available Control Technology (BACT) was not required. Copies of the Applications, Technical Evaluation, and Departmental Intent are available for inspection at the following offices:

Department of Environmental Regulation
Southwest District
7601 Highway 301 North
Tampa, Florida 33610

Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Hillsborough County Environmental
Protection Commission
1900 9th Avenue
Tampa, Florida 33605

Comments on this action shall be submitted in writing to John Svec of the Tallahassee Office, within 30 days of this notice.

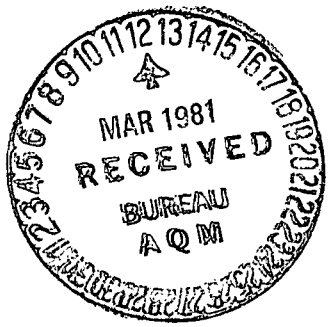
To appear in the Tampa Tribune on April ~~24~~ 29, 1981.

to Purchasing
4/16/81

COMCO Technical and commercial development of composite fuels

3201 Thirty Fourth Street South
P. O. Box 15208
St. Petersburg, Florida 33733
(813) 866-5307

March 10, 1981



Mr. Steve Smallwood
Florida Department of Environmental Regulation
Twin Towers Office Building
Tallahassee, FL 32301

Dear Mr.Smallwood:

Subject: Amendment to COMCO Permit Application
Filed February 16, 1981

This is a followup to our hand delivery on March 5, 1981, of an amendment to our application filed February 16, 1981, and surrounding COMCO's application for permit to construct an air pollution source(s) at the Port Sutton site, Tampa, Hillsborough County. Subject permit is required for the proposed coal oil mixture plant scheduled to be operational no later than November, 1981.

At our March 5 meeting in Tallahassee with the DER, we reviewed the complete amendment and related modeling studies with your Messrs. Tim Powell and Tom Rodgers and understand that the preliminary assessment reflects that our application appears to be complete. Please note that in accordance with our transmitted letter to you March 4, 1981, we have eliminated the 8MBTU/hr - No. 6 oil-fired steam generator and replaced it with a 4MBTU/hr - No. 2 oil-fired heat transfer fluid heater (reduction in heat input made possible by insulation of storage tanks) and have been advised that BACT is no longer applicable to this application. We addressed this matter with both the DER office in Tampa and the DER office in Tallahassee on March 4, 1981.

Please be aware that in addition to furnishing the modeling studies addressing impacts on the SO_2 non-attainment area in Pinellas County (i.e. to make our application complete), we have also furnished the agency with modeling studies addressing impacts to PSD increments and to show compliance with air quality standards. We trust that this additional information will assist the DER in a more expeditious review of our application. We also trust that our meeting with Messrs. Powell and Rodgers on March 4 will assist in expediting a determination of completeness for our application. We would appreciate this determination of completeness at your earliest convenience. Also, if we can provide any additional information, please advise.

As we have indicated in our initial meeting with you and your staff on February 20, 1981, COMCO is presently pursuing a fast track schedule for this project. This innovated project will displace imported oil and is both consistent with the National Energy Policy and with the goals of the new Secretary of the DER (i.e. to encourage more coal oil mixture projects in the state of Florida). Accordingly, any assistance your office can offer in expediting this permit is both solicited and welcomed.

Further to assist the agency's review and in accordance with Mr. Dan Williams request, we are transmitting a copy of the modification to our application to the DER office in Tampa.

Your further cooperation in this matter will be very much appreciated.

Sincerely,

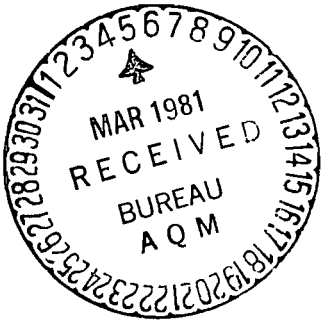
W. W. Vierday
Manager
Licensing Affairs

WWV/dd

cc Mr. Dan Williams, FDER, W/Attachments
Mr. Larry George, FDER

COMCO Technical and commercial development of composite fuels

3201 Thirty Fourth Street South
P. O. Box 15208
St. Petersburg, Florida 33733
(813) 866-5307



March 4, 1981

Mr. Steve Smallwood
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blairstone Road
Tallahassee, FL 32301

Dear Steve:

Subject: Amendment to COMCO Permit Application
Filed February 16, 1981.

We are hereby submitting the attached amendment to the air source permit application for COMCO's coal-oil mixture preparation plant filed on February 16, 1981. The most substantial of the changes reflected in the attached amendments are the results of the selection of the following technical options:

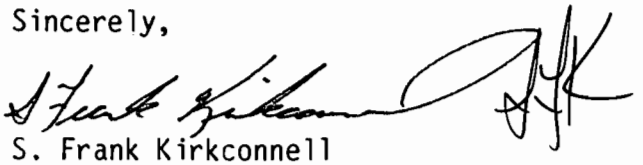
1. Replacement of the previously noted 8 MBTU/hr-#6 oil-fired steam generator with a 4 MBTU/hr-#2 oil-fired heat transfer fluid heater (reduction in heat input made possible by insulation of storage tanks).

2. Replacement of previously noted 16,800 CFM sweep gas baghouse with a distributed system of smaller bag-filters located at conveyor transfer points.

As noted in our meeting of February 20, 1981, the fast track nature of this oil displacing project and the lead time involved in securing environmental permits made it necessary to submit our permit applications at the earliest point during plant design at which the necessary technical data was available. We beleive the attached amendment fully satisfies the concerns voiced by the DER in the February 20 meeting while maintaining the technical and economic viability of our project. The noted amendments will result in a net decrease of 78 tons per year SO_2.

After careful review of Chapter 17-2 of the Florida Administrative Code, we are convinced that the amended application meets all of the listed provisions. As we discussed previously, COMCO will be immediately available to provide any clarifications necessary to secure the rapid approval of our application.

Sincerely,



S. Frank Kirkconnell
COM Development Engineer
Telephone (813)866-5106

SFK/dd

Attachments

This is to certify that the engineering features of the attached amendments to COMCO's application to construct an air pollution source have been 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.

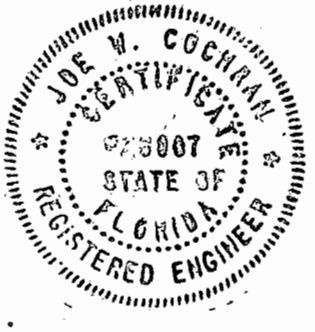
There is reasonable assurance, in my professional judgement, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the Department of Environmental Regulation. I also agree to furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Joe W. Cochran

Joe W. Cochran P.E.
Florida Registration No. 26007
COMCO/Electric Fuels Corporation
P. O. Box 15208
St. Petersburg, FL 33733

Date 3/4/81

Telephone No. (813)866-5238



STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Coal-Oil Mixture Prep. Plant [X] New[1] [ ] Existing[1]

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

COMPANY NAME: COMCO COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) COMCO Unit 1

SOURCE LOCATION: Street Pendola Pt. Road, Port Sutton City Tampa

UTM: East 361,400 North 3,086,900

Latitude 27 ° 54 ' 10 "N Longitude 82 ° 24 ' 30 "W

APPLICANT NAME AND TITLE: S, Frank Kirkconnell Development Engineer

APPLICANT ADDRESS: P.O. Box 15208, St. Petersburg, Florida 33733

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of COMCO

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: S. Frank Kirkconnell

S. Frank Kirkconnell, Development Engineer
Name and Title (Please Type)

Date: 2/16/81 Telephone No. (813)866-5106

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 the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed:

J. W. Cochran
Name (Please Type)

(Affix Seal)

COMCO/Electric Fuels Corporation
Company Name (Please Type)

P. O. Box 15208, St. Pete, FL 33733
Mailing Address (Please Type)

Florida Registration No. 26007 Date: 2/16/81 Telephone No. (813)866-5238

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

The subject preparation plant is designed to purverize 15TPH of coal and mix it with an equal amount of #6 oil, thereby producing 30 TPH of 50/50 coal-oil mixture (COM). A tramp dust collection system with baghouses will trap fugitive particulate from the coal handling system and other baghouses will limit particulate emissions from the pulverizing operation. A small oil heater is also required for tank heating. Project will result in full compliance.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction April, 1981 Completion of Construction November, 1981

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Tramp Dust Collection System $47,000

Grinding System Baghouses $52,000

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes __X__ No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr --- ;

if seasonal, describe: N/A

G. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? Yes
   a. If yes, has "offset" been applied? No
   b. If yes, has "Lowest Achievable Emission Rate" been applied? No
   c. If yes, list non-attainment pollutants.
      Particulates, Ozone
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. No
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirements apply to this source? If yes, see Sections VI and VII. No
4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? Yes
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Coal	Dust	approx. 1	30,000 lb/hr	

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): 60,000 lb/hr

2. Product Weight (lbs/hr): 60,000 lb/hr

C. Airborne Contaminants Emitted: See attached Table C-2.

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	

D. Control Devices: (See Section V, Item 4) See attached Table C-3.

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard

[4] Emission, if source operated without control (See Section V, Item 3)

[5] If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
No. 6 Residual Fuel Oil	1.6 bbl/hr	1.6 bbl/hr	10 MBTU/hr
No. 2 Fuel Oil	.33 bbl/hr	.74 bbl/hr	4.5 MBTU/hr

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, lbs/hr

Fuel Analysis: No. 6/No. 2

Percent Sulfur: 2.5 max./1.0 max. Percent Ash: .1%/.02%

Density: 8.3/8.0 lbs/gal Typical Percent Nitrogen: .5%/.5%

Heat Capacity: 18,000/18,300 BTU/lb 148,070/146,400 BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating. Annual Average N/A Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

Coal Pile Runoff - channeled to settling pond

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack): See attached Table C-4.

Stack Height: _____ ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ days/week _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner [ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight – show derivation.
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.,) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.).
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3, and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the Individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
7. An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

This section not applicable.

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [ ] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

10. Stack Parameters

a. Height: ft. b. Diameter: ft.

c. Flow Rate: ACFM d. Temperature: °F

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy*: h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy**: h. Maintenance Costs:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above.

i. Availability of construction materials and process chemical:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space and operate within proposed levels:

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency*:

3. Capital Cost:

4. Life:

5. Operating Cost:

6. Energy:

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. _____ no sites _____ TSP _____ ( ) SO^2* _____ Wind spd/dir

Period of monitoring ___/___/___ to ___/___/___
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? ____ Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? ____ Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 01 / 01 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Tampa (12842)

3. Upper air (mixing height) data obtained from (location) Tampa (12842)

4. Stability wind rose (STAR) data obtained from (location) _____

C. Computer Models Used

1. Industrial Source Complex (ISC) (modified to allow sequential processing of 5 years of meteorological data) Modified? If yes, attach description.
2. _____ Modified? If yes, attach description.
3. _____ Modified? If yes, attach description.
4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See attached Table C-2. grams/sec
SO^2	See attached Table C-2. grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

*Specify bubbler (B) or continuous (C).

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

N/A

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

CONSTRUCTION PERMIT APPLICATION--
COMCO, PORT SUTTON, FLORIDA

Prepared for:

COMCO
St. Petersburg, Florida

Prepared by:

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
Gainesville, Florida

March 1981

ESE No. 81-107-100

ATTACHMENT A--DESCRIPTION OF PROPOSED FACILITY

The COMCO Port Sutton facility (see Figure A-1) will receive coal by rail, No. 6 fuel oil by barge, and No. 2 fuel oil by truck. The coal will be ground, dried, and mixed with the oil to form a coal-oil mixture (COM). This mixture will be stored on site in insulated heated storage tanks until it is barged to the user (see Figure A-2). Total coal handling will be approximately 131,000 tons per year; a description of the coal handling process and fugitive emissions can be found in Attachment B. Total production rate (coal and oil) will be 30 tons per hour.

Point sources of emissions will consist of:

1. Particulate from the baghouses servicing the initial coal crushing and handling process;
2. Particulate, SO_2, and other combustion products from the tank oil heating system; and
3. Particulate, SO_2, and other combustion products from the grinding process sweep gas heaters (2), which will be vented through baghouses, with a common stack.

A summary of stack parameters and emissions is given in Attachments B and C. Supporting calculations are presented in Attachment E.

ATTACHMENT B--COAL HANDLING PROCESS DESCRIPTION

The facility will receive coal by rail. Total coal throughput will be approximately 131,000 tons per year. Shipments will consist of 20 railcars, each containing 100 tons of coal. The cars will be unloaded by bottom dumps to an underground receiving hopper, and the coal will be conveyed to a radial stacker-conveyor for loading onto the storage pile. A single conveyor-to-conveyor transfer point will be encountered along the path to the coal pile. The conveyors, transfer point, and railcar unloader will all be unenclosed. The instantaneous peak capacity through the unloading sequence will be 250 tons per hour, but physical constraints will limit capacity to one rail car (100 tons) per hour. Provisions will be made for water spray suppression of dust along the unloading path.

From the storage pile, the coal will be removed by front-end loader, fed into a receiving hopper, conveyed to the crusher, and transferred to the coal bunker. From the receiving hopper onward, all emissions points are vented and ducted through baghouses; thus, the only fugitive emissions after loading the coal onto the storage pile will result from wind erosion, vehicular traffic, and coal transfer by front-end loader. The projected hourly rate of coal reclaim from the storage pile to the receiving hopper and through to the plant coal bunker is 60 tons per hour; the maximum daily rate is 360 tons per day. It is anticipated that this operation will be performed a maximum of 8 hours per day, and the coal handling baghouses will only operate during these periods.

Fugitive emission sources are identified in Table B-1, with maximum daily and annual throughput for each segment.

EMISSION FACTORS AND CONTROL EFFICIENCY

Potential (uncontrolled) emissions from the operation were estimated from the document titled "Technical Guidance for Control of Industrial Process Fugitive Particulate Emissions" (EPA-450/3-77-010, March 1977). Section 2.1.2 of the technical guidance document presents an uncontrolled emission factor for coal/hopper car unloading and barge loading of coal of 0.4 pound per ton. Section 2.1.1 of the document presents transfer/conveying uncontrolled emission factors. For coal, a range

from 0.04 to 0.96 pound per ton is given. The geometric mean of this range, 0.20 pound per ton, was chosen as an average emission factor.

The emission factor for the storage pile loading operation, in which coal will be dropped, was assigned the value 0.2 pound per ton, the same as that for a conveyor transfer point.

Additional formulae are presented for loadout from piles, and vehicular traffic around and within storage piles. Using the recommended activity factor for these operations yields 0.06 pound per ton for loadout and 0.1 pound per ton for vehicular traffic. The emission factor formulae are given a reliability rating of D, indicating that they are supportable by limited test data and engineering judgment.

Fugitive emissions from the coal storage pile were estimated from information in "Source Assessment: Coal Storage Piles" (Blackwood, T.R., and Wachter, R.A., Monsanto Research Corporation produced for the Industrial Environmental Research Laboratory, U.S. Environmental Protection Agency, 1978, EPA-600/2-78-004K). This document reports the average emission factor for respirable particulate from a representative coal storage pile at 0.014 pound per year per ton of coal stored. It was assumed that the coal storage capacity at this plant was for a 90-day supply, or 25 percent of the total annual throughput.

The water spray dust suppression system was assumed to provide a 50-percent reduction in fugitive emissions, with respect to the potential or uncontrolled emission factor (EPA-450/3-77-010). This control efficiency was applied to all emission points up to and including pile loading, except for the transfer to radial conveyor. Information presented in "Particulate Control for Fugitive Dust" (Research Triangle Institute, Research Triangle Park, North Carolina, 1978, EPA-600/7-78-071) documented a 70-percent control efficiency for a chain feeder-to-conveyor transfer point while using water sprays. On this basis, a 70-percent efficiency was used for the transfer-to-radial

conveyor. Emissions due to vehicular traffic in the storage pile area were assumed to be reduced one-half by watering when conditions warrant. To account for worst-case conditions of material drying during storage, no control credit was assumed for wind erosion or for unloading from the pile.

These emission factors and control efficiencies are summarized in Table B-1.

FUGITIVE EMISSIONS SUMMARY

Table B-1 shows the total fugitive emissions on both annual and maximum daily bases. The annual controlled emissions are 31.0 tons and maximum daily emissions are 401 pounds.

Table B-1. Summary of Fugitive Dust Emissions from Coal Handling Operations, Land-Based COM Preparation Plant

Emission Source	Basic Emission Factor* (lb/ton)	Control Efficiency (%)	Annual Throughput (tons)	Maximum Daily Throughput (tons)	Annual Controlled Emissions (tons)	Maximum Daily Controlled Emissions (lbs)
Rail Car Dump	0.4	50	131,000	1,000	13.1	200
Transfer to Radial Conveyor	0.2	70	131,000	1,000	3.9	60
Pile Loading	0.2	50	131,000	1,000	6.6	100
Wind Erosion	0.014 lb/ton stored year	0	32,300	--	0.2	1
Vehicular Traffic	0.1	50	131,000	360	3.3	18
Reclaim (Loadout)	0.06	0	131,000	360	3.9	22
TOTAL					31.0	401

* Represents potential or uncontrolled emissions.

Sources: COMCO, 1981.
Environmental Science and Engineering, Inc., 1981.

ATTACHMENT C--REGULATORY APPLICABILITY

The proposed Port Sutton site is located in an area designated as nonattainment for total suspended particulate (TSP) (FAC 17-2.13) (see Figure C-1) and for ozone. Thus, neither state nor federal PSD review for these pollutants are required. However, the source is subject to nonattainment review for TSP and volatile organic compounds (VOC) under FAC 17-2.17. Table C-1 shows that maximum allowable (i.e., controlled) emissions of particulate matter are less than 50 tons per year and 1,000 pounds per day. Emissions of VOC are also less than 100 pounds per hour and 50 tons per year (Table C-2). FAC 17-2.17(3) provides that a new source, which has an allowable emission less than these cutoff levels, shall be exempt from the provisions of 17-2.17(5) through (7) (pertaining to LAER, emissions offset, and new source allowance). A proposed source which is so exempted remains subject to NSPS (40 CFR Part 60) and NESHAPS (40 CFR Part 61), or any applicable emission limiting standard in 17-2.05, whichever is more restrictive.

Applicable NSPS are found in 40 CFR 60 Subpart Y for coal preparation plants. Because the processing capacity will exceed 200 tons per day of coal, particulate emissions from the thermal drying operation are limited to 0.031 grain/dscf and 20 percent opacity. The coal storage and transfer operations are limited to 20 percent opacity. Attachment D shows that the design parameters for these operations will limit emissions to 0.02 grain/scf. The baghouses will be maintained to prevent visible emissions in excess of 20 percent opacity.

Tables C-1 and C-2 also show that potential emissions of sulfur dioxide and other attainment pollutants from the plant will not exceed 250 tons per year. "Coal cleaning plants" is one of the 28 PSD source categories named in 40 CFR 52.21 and 17.02(77). However, this category is not applicable to the proposed facility since no on-site coal-cleaning will be conducted. Therefore, because the proposed type facility is not one of the 28 source categories and will not emit greater than 250 tons per year for attainment pollutants, it is not a "major emitting facility"

for attainment pollutants (i.e., pollutants other than particulate matter and VOC). Table C-3 presents control device specifications and Table C-4 presents stack parameters for each emission point at the facility.

Table C-1. Summary of Particulate Matter and Sulfur Dioxide Emissions from Land-Based COM Plant, COMCO, Port Sutton, Florida

Source	Particulate Matter (lb/day)	Particulate Matter (ton/yr)	Sulfur Dioxide (ton/yr)
Coal reclaim, crushing and bunkering baghouses	13.6	2.74	--
Pulverizing and mixing	2.4	0.46	--
Sweep dryers	16.8	3.0	123.6
Oil heater	1.44	0.27	21.7
Fugitive emissions	401.0	31.0	--
TOTAL	435.0	37.5	145.3

Sources: COMCO, 1981.
Environmental Science and Engineering, Inc., 1981.

Table C-2. Airborne Contaminants Emitted

Process/Pollutant	Emissions* Maximum (lb/hr)	Emissions* Actual (tons/yr)	Allowed Per Chapter 17-2	Allowble Emissions (lb/hr)	Potential (lb/hr)	Emissions (tons/yr)	Relate to Flow Diagram
Coal Unloading and Transfer							
Fugitive Particulate	36.0††	23.6	17-2.05 (3) Reasonable Precautions	--	80.0	52.4	
Coal Reclaim, Crushing, and Bunkering							
Fugitive Particulate	1.7	7.4	17-2.05 (3) Reasonable Precautions	--	2.5	10.7	
Coal Handling Bag 1	1.37	2.0**	17-2.05 (2) $E = 3.59\ p^{0.62}$	19.2	1,370†	2,000†	1
Coal Handling Bag 2	0.05	0.08**			50†	80†	2
Coal Handling Bag 3	0.1	0.15**			100†	150†	3
Coal Handling Bag 4	0.09	0.13**			90†	130†	4
Coal Handling Bag 5	0.09	0.38			90†	380	5

Table C-2. Airborne Contaminants Emitted (Continued, Page 2 of 3)

Process/Pollutant	Emissions* Maximum (lb/hr)	Emissions* Actual (tons/yr)	Allowed Per Chapter 17-2	Allowble Emissions (lb/hr)	Potential (lb/hr)	Emissions (tons/yr)	Relate to Flow Diagram
Pulverizing and Mixing							
Bunker Discharge Bag 6							
Particulate	0.05	0.23	17-2.05 (2) Table 1	29.83	50†	230†	6
Bunker Discharge Bag 7							
Particulate	0.05	0.23			50†	230†	7
Sweep Dryer							
Particulate	0.7	3.0	17-2.05 (2) Table 1	29.83	700†	3,000†	8
SO_2	28.2	123.6	NA	--	28.0	124.0	8
NO_2	4.1	17.87	NA	--	4.1	17.87	8
CO	0.34	1.49	NA	--	0.34	1.49	8
HC	0.07	0.30	NA	--	0.07	0.30	8

Table C-2. Airborne Contaminants Emitted (Continued, Page 3 of 3)

Process/Pollutant	Emissions* Maximum (lb/hr)	Emissions* Actual (tons/yr)	Allowed Per Chapter 17-2	Allowble Emissions (lb/hr)	Potential (lb/hr)	Emissions (tons/yr)	Relate to Flow Diagram
Pulverizing and Mixing (cont'd)							
Oil Heater							
Particulate	0.06	0.27	NA	--	0.06	0.27	9
SO_2	5.0	21.7	NA	--	5.0	21.7	9
NO_2	0.68	3.0	NA	--	0.68	3.0	9
CO	0.16	0.68	NA	--	0.16	0.68	9
HC	0.03	0.14	NA	--	0.03	0.14	9

* For basis, see Attachments B and D.

† Assumes baghouse is 99.9 percent efficient.

** Based upon baghouses operating a maximum of 8 hours per day.

†† Based upon maximum 10-hour period for unloading operation.

Sources: COMCO, 1981.
Environmental Science and Engineering, Inc., 1981.

able C-3. Control Devices

Name and Type (Model and Serial No.)	Contaminant	Efficiency	Range of Particle Size Collected	Basis for Efficiency	Air/Cloth Ratio
oal Handling Bag 1: Micropulsaire 121S-10-20 or equivalent	Particulate	99.9%	Submicron	Manufacturer's Guarantee	6.5:1
oal Handling Bag 2: Dalamatic DLM-V6F or equiv.	Particulate	99.9%	Submicron	Manufacturer's Guarantee	10:1
oal Handling Bag 3: Dalamatic DLM-V12F or equiv.	Particulate	99.9%	Submicron	Manufacturer's Guarantee	9.5:1
oal Handling Bag 4: Dalamatic DLM-V10F or equiv.	Particulate	99.9%	Submicron	Manufacturer's Guarantee	9.5:1
oal Handling Bag 5: Dalamatic DLM-V10F or equiv.	Particulate	99.9%	Submicron	Manufacturer's Guarantee	9.5:1
unker Discharge Bags 6 & 7: Dalamatic DLM-V6F or equiv.	Particulate	99.9%	Submicron	Manufacturer's Guarantee	10:1
veep Dryer (2 bags): Griffin Jet-Aire JA-120S pulse type or equivalent	Particulate	99.9%	Submicron	Manufacturer's Guarantee	2.3:1

ources: COMCO, 1981.
Environmental Science and Engineering, Inc., 1981.

Table C-4. Stack Parameters

Source	Stack Height (ft)	Stack Diameter (ft)	Flow Rate (acfm)	Exit Temperature (°F)	Water Vapor Content (%)	Exit Velocity (ft/sec)
Coal Handling Bag 1	20	1.3	8,000	Ambient	5	96
Coal Handling Bag 2	10	0.44	600	Ambient	5	66
Coal Handling Bag 3	20	0.75	1,200	Ambient	5	46
Coal Handling Bag 4	10	0.63	1,000	Ambient	5	54
Coal Handling Bag 5	60	0.63	1,000	Ambient	5	54
Coal Handling Bag 6	30	0.44	600	Ambient	5	66
Coal Handling Bag 7	30	0.44	600	Ambient	5	66
Sweep Dryer	75	1.15	4,980	200	56	80
Oil Heater	40	1.17	1,830	550	5	28.4

Sources: COMCO, 1981.
Environmental Science and Engineering, Inc., 1981

ATTACHMENT D--MODELING

SULFUR DIOXIDE, CLASS II

Methodology

The EPA-approved Industrial Source Complex (ISC) model was employed with the rural option and meteorological data collected at Tampa International Airport during 1970 to 1974 (Output D-1). The area emission inventory as compiled for TECO Gannon (August 1980) was the basis for the current inventory; new sources as shown in the 1980 APIS were added (see Output D-2). The only increment-consuming source identified in the vicinity of COMCO was at Gulf Coast Lead (57-02, 3/28/80).

An initial 5-year run was made with only COMCO sources to identify highest, second-highest impacts overall and periods of critical meteorology in the directions of interaction with nearby significant sources. Critical periods identified in the Gannon Modeling Analysis were also used. Receptors along the direction of interaction were examined with the ISC utilizing a complete inventory and the corresponding critical meteorology.

Results

Output D-1 shows the highest, second-highest SO_2 impacts due to COMCO alone: 6.4 ug/m^3 annual average, 153 ug/m^3 3-hour average and 53 ug/m^3 24-hour average.

Sources considered in the interaction analysis are shown in Table D-1 along with critical meteorology and direction towards COMCO. It can be seen that in no case does the combined impact exceed state or national AAQS (1,300 ug/m^3 3-hour and 260 ug/m^3 24-hour). These results are documented in Output D-2.

The interaction with Gulf Coast Lead was modeled with the complete emission inventory as shown in Output D-2. The predicted total concentrations of 118 ug/m^3 3-hour and 49 ug/m^3 24-hour are 23 percent and 54 percent of the respective PSD increments, (512 ug/m^3 and 91 ug/m^3).

As a result, no specific increment consumption analysis was performed since increment consumption for this case could only be less than the total air quality values.

SULFUR DIOXIDE, CLASS I

The only SO_2 nonattainment area within 50 kilometers is in the northern part of Pinellas County, approximately 47 kilometers northwest of the proposed site. Therefore, the Port Sutton site is within the "area of influence" of this nonattainment area, and nonattainment review is limited to demonstration of nonsignificant impact on SO_2 nonattainment areas. Results of analysis using the ISC model indicate that the highest concentration impacts on this area are 8.0 ug/m, 3-hour, and 1.7 ug/m, 24-hour; both of which are below the significance levels of 25 ug/m^3 and 5 ug/m^3, respectively. The projected annual average SO_2 concentration due to the proposed source at the nonattainment area is less than 0.1 ug/m^3 (significance level is 1.0 ug/m^3). Copies of the model output are provided in Output D-3.

Table D-1. Interaction of Nearby Significant Sources with COMCO SO_2 Impacts

Source --> COMCO	Direction (Degrees)	3-Hour Period (Day/Period/Year)	3-Hour Maximum Concentration* (ug/m^3)	24-Hour Period (Day/Year)	24-Hour Maximum Concentration (ug/m^3)
Gannon	113	208/4/1973	897	169/1973	125
		228/6/1974	654	208/1973	125
				85/1973	47†
Gardinier	341	309/3/1972	163	149/1970	38
Nitram	219	172/4/1974	104	266/1974	31
				9/1973	45
Hooker's Point	140	249/6/1973	189†	351/1973	60†
Gulf Coast Lead	250	253/4/1974	118	321/1973	43†

* Highest, second-highest predicted concentration.

† Maximum concentration within range of significant COMCO contribution.

Source: Environmental Science and Engineering, Inc., 1981.

ATTACHMENT E--COMCO EMISSIONS CALCULATIONS

OIL HEATER FOR TANK HEATING
1.0% S No. 2 Oil
31 gal/hr
No. 2 Oil @ 8.0 lb/gal
31 gal/hr x 8.0 lb/gal x 0.01 x 2
= 5.0 lb/hr SO^2
= 0.62 g/sec

5.0 lb/hr x 8,760 hr/yr ÷ 2,000
= 21.7 tons/yr SO_2

Use AP-42 factors, industrial and commercial boilers
Distillate oil
Particulate: 2 lb/10^3 gal
NO_X: 22 lb/10^3 gal
CO: 5 lb/10^3 gal
HC: 1 lb/10^3 gal

Particulate: 31 gal/hr x 2 ÷ 1,000 = 0.06 lb/hr
= 0.008 g/sec
= 0.27 tons/yr

NO_X: 31 x 22 ÷ 1,000 = 0.68 lb/hr = 3.0 tons/yr
CO: 31 x 5 ÷ 1,000 = 0.16 lb/hr = 0.68 tons/yr
HC: 31 x 1 ÷ 1,000 = 0.03 lb/hr = 0.14 tons/yr

SWEEP DRYER

2 units at 5×10^6 Btu/hr = 10×10^6 Btu/hr
10×10^6 Btu/hr ÷ 148×10^3 Btu/gal = 68 gal/hr

$$68 \text{ gal/hr} \times 8.3 \times \underbrace{0.025}_{\text{2.5\% S oil}} \times 2$$
= 28.2 lb/hr SO_2
= 3.56 g/sec
= 123.60 tons/yr

Particulate:
2 units x (0.02 gr/SCFM) x (2,000 SCFM) x (0.0648 gr/g) x 1/60 x
0.086 g/s
0.086 g/sec x 3,600 sec/hr ÷ 454 g/lb = 0.68 lb/hr
0.68 lb/hr x 8,760 hr/yr ÷ 2,000 = 2.98 tons/yr

AP-42 Factors:
NO_x: 68 x 60 ÷ 1,000 = 4.08 lb/hr = 17.87 tons/yr
CO: 68 x 5 ÷ 1,000 = 0.34 lb/hr = 1.49 tons/yr
HC: 68 x 1 ÷ 1,000 = 0.068 lb/hr = 0.30 tons/yr

COAL HANDLING BAGHOUSES

Bag 1 meets 0.02 gr/acfm
Bags 2-7 meet 0.01 gr/acfm
Maximum operating time = 8 hrs/day, bags 1-4

Sample calculation:
Bag 1:8,000 acfm x 0.02 gr/acfm x (0.0648 gr/g) x 1/60
= 0.17 g/s = 1.37 lb/hr = 2.0 tons/yr

PULVERIZER BAG HOUSES
Maximum operating time = 24 hrs/day, bags 5, 6, and 7

THE DALAMATIC

DALAMATIC reverse jet fabric filters are designed for continuous operation on applications where product or nuisance dusts are involved and where high collection efficiencies are required. The Dalamatic is capable of filtering heavy dust burdens at a high filtration velocity and a constant level of resistance. Collection efficiency often exceeds 99·99%. The Dalamatics have proven themselves through years of successful performance and have gained wide acceptance in the world's most demanding markets. The improvements in the current design have resulted from the experience gained through thousands of installations cleaning millions of CFM. These modifications have improved filter performance, capacity, and convenience of maintenance, without increasing costs. Today's Dalamatics meet today's rigid requirements.

Some Dalamatic advantages:

- **Downward Flow**
The top inlet of this filter insures a downward flow and more effective operation. Other types with bottom inlet and upward air flow have a higher pressure loss for a given filtration velocity.

- **Cleanside Access**
Full width access from the clean air side makes inspections and changing of filter envelopes easier and safer. Access from the dust side — as on some competitive models — is always unpleasant and may even be dangerous when toxic contaminants are involved.

- **Convenient Envelope Size**
Filter elements are designed so that one man can change a filter envelope without help. In some designs this is impossible.

- **No Moving Parts**
Filter envelopes are cleaned in turn by a brief burst of compressed air in the reverse direction of the main air flow. This is electronically controlled, automatic and continuous. With no moving parts, filter reliability is greater than with mechanical cleaning systems.

- **Advanced Production Methods**
Our designs utilize sophisticated manufacturing techniques which produce a sturdy filter casing at a relatively low cost.

- **Tight Envelope Seals**
The Dalamatic method of sealing each filter envelope by compressing an integral sealing ring between the insert header and the seal frame insures a tight seal — without screws and toggle bolts.

- **Easy Access to Controls**
The controller and filter cleaning assembly are located below the clean air chamber for easy access and adjustment. Top-mounted equipment can be difficult to reach.

- **Very Compact**
The flat envelope configuration of filter elements makes the Dalamatic extremely compact and insures maximum filtration area in a given space.

- **Double Banking**
To save additional space two multi-bank assemblies can be jointed on either the dirty or the clean air sides. This means a considerable saving in the need for access platforms and inspection doors while keeping the advantage of easy access for envelope changing.

ELECTRICAL SUPPLY

All Insertables require a two-wire supply of 115v or 230v to operate the controller. In addition, Type F filters require a three-phase supply to drive the fan motor — DCE VOKES standard motors being suitable for 230/460v, 3ph, 60Hz.

TYPICAL APPLICATIONS

(a) Venting Silos in Pneumatic Conveying Systems

1. Blowing system in which every part is under positive pressure and the fan or blower is at the beginning of the line, providing the motive power. (See Fig. 8a.)

2. Suction system where a suction fan at the end of the line draws the product along the line and keeps the whole system under suction. (Fig. 8b.)

3. System employing both blower and suction fan (see Fig. 8c). Examples are applications involving delivery to a silo which has to be kept below atmospheric pressure to avoid escape of dust through leakage, or where direct inspection of the interior of a silo is required while working.

The filter is inserted in the top of the silo or storage vessel to separate the product from conveying air so that product loss and dust nuisance are both prevented. The reverse jet cleaning system removes the collected dust continuously from the filter elements and returns it directly to the bulk content of the silo. The DLM-V Type B and DLM-V Type W are normally applied in blowing systems and the DLM-V Type H in suction systems. The DLM-V Type F is used in the third case on systems where the suction fan is needed to assist in the relief of pressure from the system.

(b) Mechanical Conveyors

The dust cloud which arises at loading, discharge and transfer points on mechanical conveyors can be controlled by a DLM-V Type F mounted in or above an aperture cut in the enclosure. The collected dust is returned directly to the product. This saves space, makes ducting and other ancillary equipment unnecessary and avoids the secondary dust problems associated with disposal of the collected dust. (See Fig. 9.)

(c) Silo Fed by Mechanical Conveyor

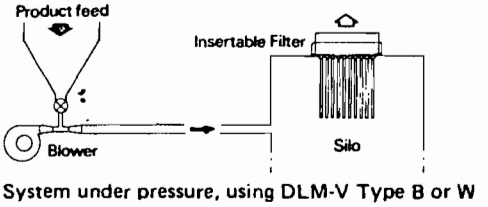
The DLM-V Type F is either mounted above the tipping point or in a separate opening adjacent to it. The filter keeps the silo under suction and so retains airborne particles which would otherwise be carried away by the displaced air escaping from the silo. The collected dust is continuously returned to the product in the silo.

(d) Ventilation of Air Slides

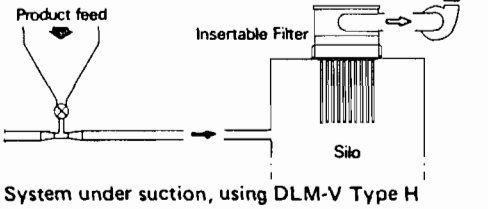
A DLM-V may be directly mounted at the end of an air slide powder transport system for air release. If the air slide system is extensive, it may be convenient to install the DLM-V at an intermediate junction or bend.

(e) Dust Control System with Pre-separation

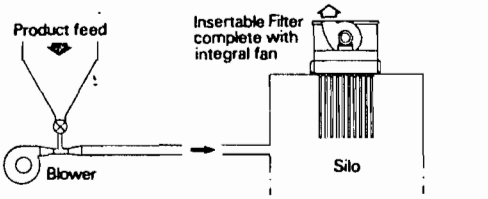
With certain dusts, of extremely fibrous or abrasive nature for example, it is sometimes preferable that the filter should not come into direct contact with the bulk dust load.



a System under pressure, using DLM-V Type B or W



b System under suction, using DLM-V Type H



c System under suction, using DLM-V Type F

Fig. 8 Venting silos fed by pneumatic conveying systems

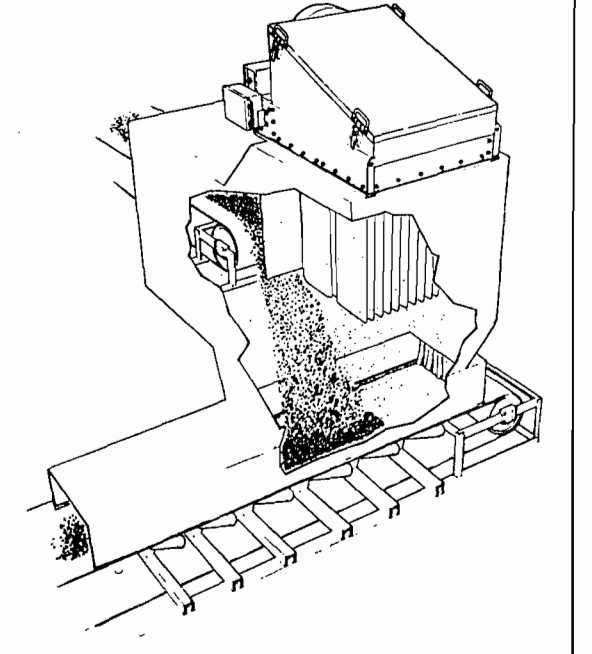
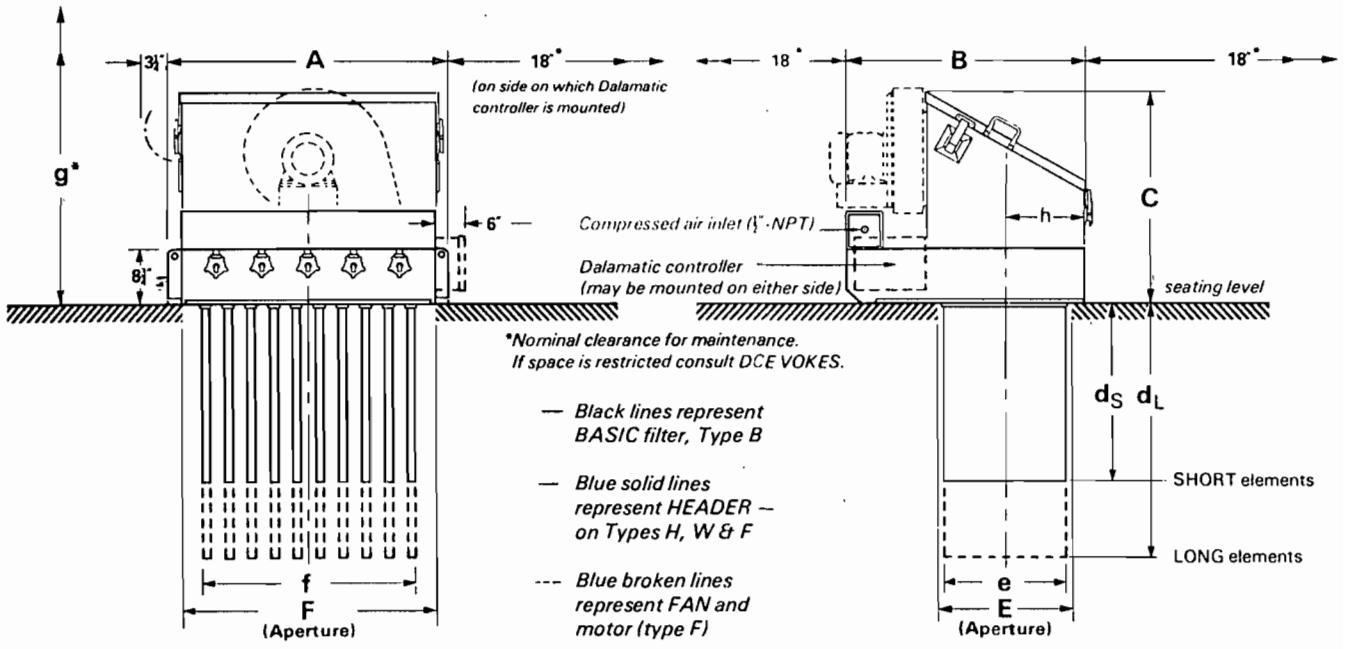


Fig. 9 DLM-V Type F mounted above belt transfer point

Series DLM-V

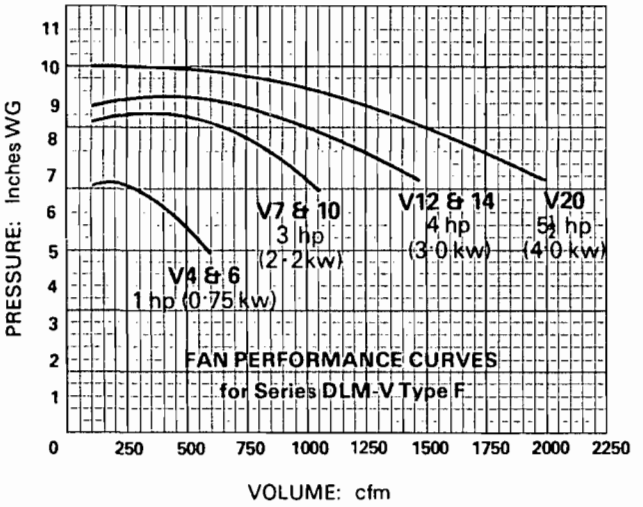


Size DLM-V7 illustrated, larger elements representing DLM-V10

MODEL*	DIMENSIONS (Tolerance ±⅛" on main dimensions)													
	All Types								Type B			Types H, W & F†		
	A	d_S	d_L	E	e	F	f	h	B‡	C	g	B‡	C‡	g
DLM-V4	2′ 3½″	2′ 3½″	–	20½″	19″	23½″	18½″	12¼″	2′ 11¾″	14¾″	2′ 10″	2′ 11¾″	2′ 6⅛″	3′ 7″
DLM-V6	2′ 3½″	–	3′ 3½″	20½″	19″	23½″	18½″	12¼″	2′ 11¾″	14¾″	4′ 0″	2′ 11¾″	2′ 6⅛″	4′ 11″
DLM-V7	3′ 7½″	2′ 3½″	–	20½″	19″	3′ 3¼″	2′ 8½″	12¼″	3′ 0⅝″	14¾″	2′ 10″	3′ 0⅝″	2′ 8⅞″	3′ 7″
DLM-V10	3′ 7½″	–	3′ 3½″	20½″	19″	3′ 3¼″	2′ 8½″	12¼″	3′ 0⅝″	14¾″	4′ 0″	3′ 0⅝″	2′ 8⅞″	4′ 11″
DLM-V12	2′ 3½″	–	3′ 3½″	3′ 5¼″	3′ 3½″	23½″	18½″	22⅜″	5′ 0″	15¾″	4′ 0″	5′ 0″	2′ 10″	4′ 11″
DLM-V14	3′ 7½″	2′ 3½″	–	3′ 5¼″	3′ 3½″	3′ 3¼″	2′ 8½″	22⅜″	5′ 0″	15¾″	2′ 10″	5′ 0″	2′ 10″	3′ 7″
DLM-V20	3′ 7½″	–	3′ 3½″	3′ 5¼″	3′ 3½″	3′ 3¼″	2′ 8½″	22⅜″	5′ 0″	15¾″	4′ 0″	5′ 0″	2′ 10″	4′ 11″

*For number of elements and total filter areas see chart on page 8 †For fan details see below
‡Type F fan motors and cases may project by up to 2½" beyond these dimensions

MODEL	APPROX. NET WEIGHTS			
	Type B	Type H	Type W	Type F
DLM-V4	220 lb	270 lb	280 lb	320 lb
DLM-V6	250 lb	300 lb	310 lb	350 lb
DLM-V7	490 lb	540 lb	560 lb	630 lb
DLM-V10	540 lb	600 lb	620 lb	680 lb
DLM-V12	510 lb	560 lb	580 lb	660 lb
DLM-V14	620 lb	740 lb	760 lb	850 lb
DLM-V20	710 lb	830 lb	850 lb	960 lb



OPERATING DESIGN LIMITS

Temperature range: **Types B, H & W** *Two choices available:* **(a)** 15° to 140°F; **(b)** 15° to 250°F; **Type F** 15° to 140°F
For lower or higher temperature applications consult with DCE VOKES Inc.
Pressure limits for Type H: −15" to +2" WG.

Mikro-Pulsaire Dust Collector For Maximum Dust Recovery

Mikro-Pulsaire

The Mikro-Pulsaire dry filter collector combines high dust collection efficiency with very low maintenance. The unit is fully automatic and self cleaning. The unique design of the Mikro-Pulsaire has eliminated all moving parts thereby contributing to minimum maintenance and maximum efficiency of operation. All controls for the Mikro-Pulsaire are located on the outside of the unit.

Reverse Jet Operation

Basically the Mikro-Pulsaire consists of a series of cylindrical filter elements enclosed in a rugged, dust-tight fabricated metal housing. The contaminated, dust-laden air enters the housing through the hopper inlet. The dust particles accumulate on the filter elements. Periodically a momentary jet of high-pressure air is "pulsed" through a uniquely designed venturi nozzle located above each filter cylinder. The **primary** high-pressure jet pumps **secondary** air as a function of the jet pump method thereby producing a "reverse-flow" of air which cleans the filter cylinders. Continuous flow of air through the Mikro-Pulsaire is maintained at all times since only a small part of the filter element is cleaned at any given time. The air jets are controlled by diaphragm valves which are activated by solenoid pilot valves and a timer.

Unique Features

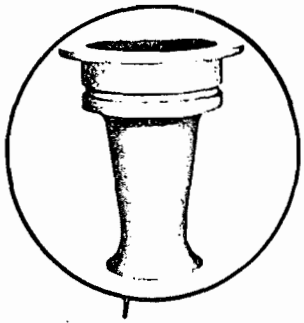
- High Dust Collection Efficiency . . . 99.9%
- Heavy Duty Construction . . . Minimum 14 Gauge
- No Internal Moving Parts
- Economical Installation . . . All Units Pre-wired
- Handles Dust Streams to 425° Fahrenheit. High temperature filter elements of DuPont "Nomex"® allows operation above most acid dew points. When extra resistance to chemicals is required DuPont Teflon® is also available for use in the filter elements.
- Installations World Wide . . . Over 60,000 installations throughout the world.
- Can be Used by Any Industry Having a Dry Dust Problem.

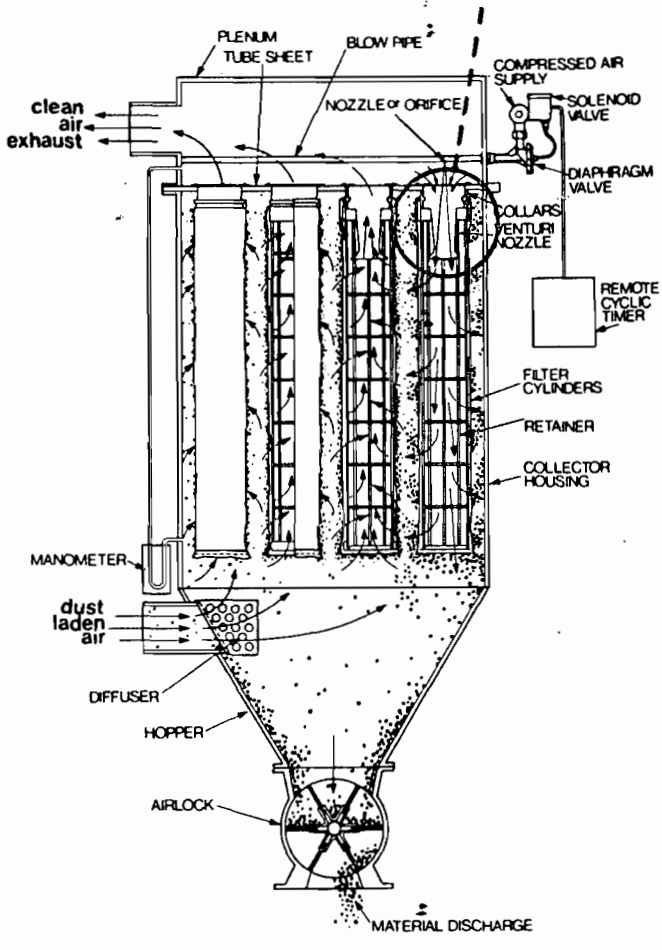
AVAILABILITY — All Mikro-Pulsaires can be supplied in three styles:

A Style — Plenum only
B Style — Plenum and Housing
C Style — Plenum, Housing and Hopper

Original MikroPul Venturi

This venturi provides maximum efficiency to the filter media and is standard equipment of all Mikro-Pulsaire dust collectors.



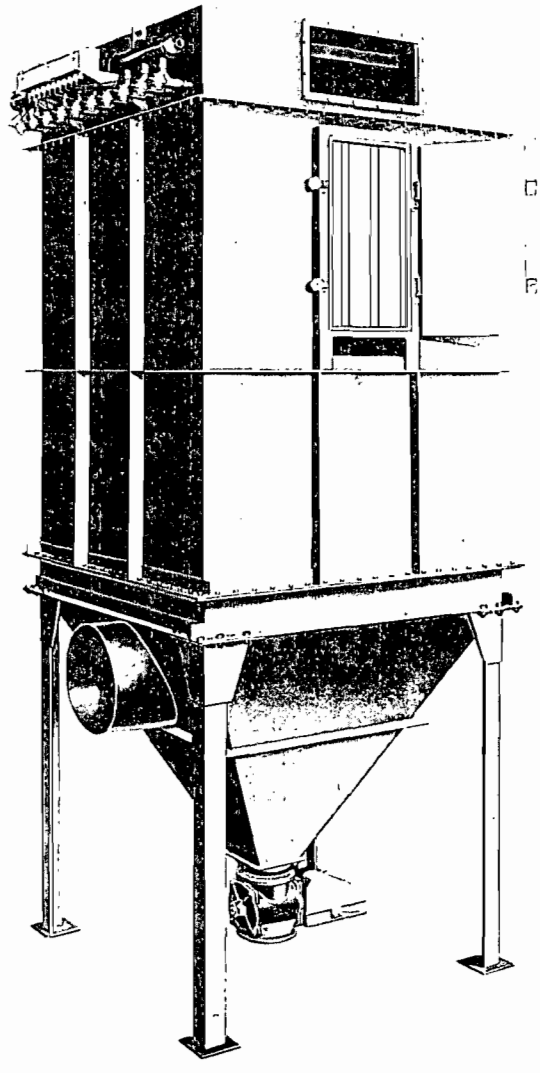


Schematic diagram showing the flow of dust and air and the arrangement of filter cylinders in the Mikro-Pulsaire Dust Collector.

MEMBER IOCI

Mikro-Pulsaire is originated and manufactured solely by MikroPul Corporation.

Square Welded Mikro-Pulsaire

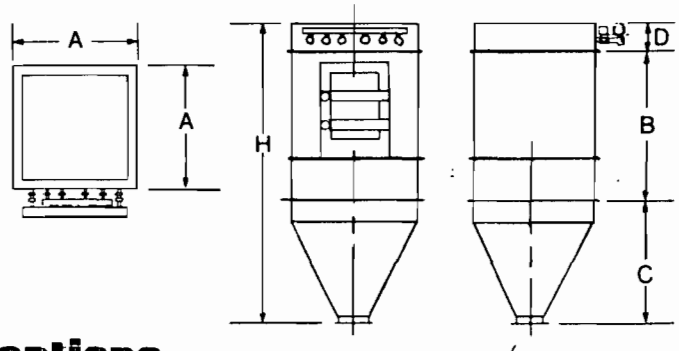


Collects And Controls A Wide Variety of Industrial Dusts

The Square Welded Mikro-Pulsaire is factory assembled. It is fabricated of heavy duty 12 gauge steel. Available in sizes ranging from 16 to 144 filter bags. Bags are 8 and 10 feet long. The Square Welded Pulsaire offers maximum collection efficiency in a minimum space. Packing up to 1696 sq. ft. of filter cloth within a seven foot housing, Mikro-Pulsaire is successfully venting particle size reduction machinery, spray dryers, separators, calciners, mixers, packaging machinery, mechanical conveyors, carloading operations and many other dust generating operations in industrial processing.

The Square Welded Mikro-Pulsaire handles dust loadings of more than 100 grains per cubic foot and generally eliminates the need for primary filtration equipment.

A portable platform is included for filter bag removal. Inlet and exhaust configurations are rotatable in 90° increments.



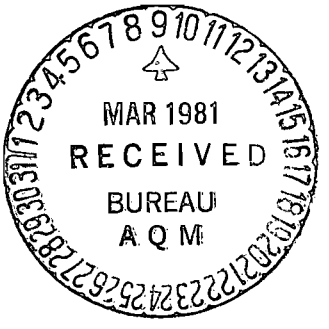
Specifications

Square Series																		
8 Ft. and 10 Ft. Filter Tubes																		
Model	16S		25S		36S		49S		64S		81S		100S		121S		144S	
	-8-30	-10-30	-8-30	-10-30	-8-30	-10-30	-8-20	-10-20	-8-20	-10-20	-8-20	-10-20	-8-20	-10-20	-8-20	-10-20	-8-20	-10-20
Number of Filter Tubes	16	16	25	25	36	36	49	49	64	64	81	81	100	100	121	121	144	144
Filter Area Ft.	151	188	236	295	339	424	462	577	603	754	763	954	942	1178	1130	1414	1356	1696
Approx. Wt. in lbs.	1175	1270	1395	1660	1940	2110	2555	2605	2800	3120	3450	3820	3150	4145	4480	4910	5215	5720
Dim. "A" inches	30	30	36	36	48	48	54	54	60	60	66	66	72	72	78	78	84	84
Dim. "C" inches	29	29	34	34	45	45	50	50	55	55	60	60	65	65	70	70	75	75
Dim. "D" inches	12	12	12	12	12	12	18	18	18	18	18	18	18	18	18	18	24	24
Dim. "B" inches	93	117	93	117	93	117	93	117	93	117	93	117	93	117	93	117	93	117
Dim. "H" inches	134	158	139	163	150	174	161	185	166	190	171	195	176	200	181	205	192	216

ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

P.O. BOX ESE
GAINESVILLE, FLORIDA 32602
904/372-3318

March 6, 1981
ESE No. 81-107-100



Mr. Larry George
Acting Chief, Permitting Section
Air Quality Management Bureau
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32301

RE: COMCO Coal/Oil Mixture Preparation Plant Permit Application

Dear Larry:

Enclosed is the additional information concerning emissions from coal piles as requested by Tim Powell and Tom Rogers in our meeting of March 5, 1981. The fugitive emissions table (B-1) has been revised using an emission factor for wind erosion found in the referenced Technical Guidance Document; the corresponding entry in Table C-1 has been updated. It is our understanding that this additional information is not necessary for determination of completeness.

Additional review has disclosed one additional miscalculation and a typographical error. The first entry under Particulate Matter (lb/day) in Table C-1 was changed from 13.6 to 15.0 to reflect 24-hour per day operation of coal handling baghouse No. 5. The stack height of the oil heater is given in Table C-4 was changed from 40 to 30. Copies of the corrected pages are included.

If you have any questions or require further information or clarification, please let me know.

Sincerely,

David A. Buff

David A. Buff, M.E., P.E.
Senior Engineer
Project Operations

DAB/kf

cc: W.W. Vierday, FPC
Frank Kirkconnell, COMCO

Table B-1. Summary of Fugitive Dust Emissions from Coal Handling Operations, Land-Based COM Preparation Plant

Emission Source	Basic Emission Factor* (lb/ton)	Control Efficiency (%)	Annual Throughput (tons)	Maximum Daily Throughput (tons)	Annual Controlled Emissions (tons)	Maximum Daily Controlled Emissions (lbs)
Rail Car Dump	0.4	50	131,000	1,000	13.1	200
Transfer to Radial Conveyor	0.2	70	131,000	1,000	3.9	60
Pile Loading	0.2	50	131,000	1,000	6.6	100
Wind Erosion	0.05	0	131,000	1,000	3.3	50
Vehicular Traffic	0.1	50	131,000	360	3.3	18
Reclaim (Loadout)	0.06	0	131,000	360	3.9	22
TOTAL					34.1	450

* Represents potential or uncontrolled emissions.

Sources: COMCO, 1981.
Environmental Science and Engineering, Inc., 1981.

Table C-1. Summary of Particulate Matter and Sulfur Dioxide Emissions from Land-Based COM Plant, COMCO, Port Sutton, Florida

Source	Particulate Matter (lb/day)	Particulate Matter (ton/yr)	Sulfur Dioxide (ton/yr)
Coal reclaim, crushing and bunkering baghouses	15.0	2.74	--
Pulverizing and mixing	2.4	0.46	--
Sweep dryers	16.8	3.0	123.6
Oil heater	1.44	0.27	21.7
Fugitive emissions	450.0	34.1	--
TOTAL	485.6	40.6	145.3

Sources: COMCO, 1981.
Environmental Science and Engineering, Inc., 1981.

Table C-4. Stack Parameters

Source	Stack Height (ft)	Stack Diameter (ft)	Flow Rate (acfm)	Exit Temperature (°F)	Water Vapor Content (%)	Exit Velocity (ft/sec)
Coal Handling Bag 1	20	1.3	8,000	Ambient	5	96
Coal Handling Bag 2	10	0.44	600	Ambient	5	66
Coal Handling Bag 3	20	0.75	1,200	Ambient	5	46
Coal Handling Bag 4	10	0.63	1,000	Ambient	5	54
Coal Handling Bag 5	60	0.63	1,000	Ambient	5	54
Coal Handling Bag 6	30	0.44	600	Ambient	5	66
Coal Handling Bag 7	30	0.44	600	Ambient	5	66
Sweep Dryer	75	1.15	4,980	200	56	80
Oil Heater	30	1.17	1,830	550	5	28.4

Sources: COMCO, 1981.
Environmental Science and Engineering, Inc., 1981.

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA-600/2-78-004k		PB284297

4. TITLE AND SUBTITLE	5. REPORT DATE
SOURCE ASSESSMENT: COAL STORAGE PILES	May 1978 issuing date
	6. PERFORMING ORGANIZATION CODE

7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
T. R. Blackwood and R. A. Wachter	MRC-DA-504

9. PERFORMING ORGANIZATION NAME AND ADDRESS	10. PROGRAM ELEMENT NO.
Monsanto Research Corporation 1515 Nicholas Road Dayton, Ohio 45407	1BB610
	11. CONTRACT/GRANT NO.
	68-02-1874

12. SPONSORING AGENCY NAME AND ADDRESS	13. TYPE OF REPORT AND PERIOD COVERED
Industrial Environmental Research Lab-Cinn., OH Office of Research and Development U.S. Environmental Protection Agency Cincinnati, Ohio 45268	Task Final, 5/74-9/75
	14. SPONSORING AGENCY CODE
	EPA/600/12

15. SUPPLEMENTARY NOTES

IERL-Ci project lead for this report is John F. Martin, 513/684-4417

16. ABSTRACT

This report describes a study of atmospheric emissions from coal storage piles. Fugitive emissions of dust and gases are emitted from coal stora piles. The average emission factor for respirable particulate (<7 μm) is 6.4 mg/kg per annum; this factor describes the emission rate 95% of t time within 108%. From the distribution of coal piles, a representative pile was selected containing 95,000 metric tons of bituminous coal. The emission rate from this pile averages 19 mg/s or 610 kg/yr. In order to evaluate the potential environmental effect of coal storage piles, a severity factor was defined as the ratio of the maximum ground level con centration of an emission to the ambient air quality standard for criter pollutants and to a modified threshold limit value for other pollutants. Severity factors for a representative coal storage pile are 0.025 and 1. when the emissions are treated as gross particulate and coal dust, respe tively. The national emission burden from all coal storage piles is 0.00048% of total national particulate emissions. The amount of coal stored is increasing at the rate of 3.8% per year and this will result i a 25% increase in emissions in 1978 compared to 1972. Air pollution con trol techniques for coal storage piles have not been generally establis and no future control techniques are presently under consideration.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Grou
Air Pollution Coal Dust Gases	Air Pollution Control Stationary Sources Source Severity Particulate	68A

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report)	21.
RELEASE TO PUBLIC	UNCLASSIFIED	
	20 SECURITY CLASS (This page)	22. PRICE
	UNCLASSIFIED	A05 — A0

EPA Form 2220-1 (9-73)

☆ U.S. GOVERNMENT PRINTING OFFICE: 1978 — 757-1

APPENDIX A

ANALYSIS OF SAMPLING RESULTS

1. MASS EMISSIONS RATES

Four sampling runs were performed during two different periods, March and August 1974, at a coal pile site. Sampling equipment and procedures are described in Appendix D. Since the variability of emissions from a single coal pile is greater than the variations between coal piles (see Appendix B.3.c. for basis) the results were considered as four separate samples at one coal pile. The positions of the samplers during March and August are shown respectively in Figures A-1 and A-2. Except for one day, coal was not being transferred or moved at the pile by bulldozers during the sampling. This activity would be expected to generate additional dust that was not due to the storage of coal. In fact, there was no statistical difference noted. In addition, the pile selected for sampling was located in a rural, non-industrialized area in order to avoid any possible interference from particulates generated at other sources.

The sampler labeled S_o was positioned upwind of the pile for use as a reference to the particulate concentration in the atmosphere, prior to the addition of particulates from the coal pile. Subtraction of the concentration level at S_o from the concentrations obtained at downwind samples S_1 through S_4 yielded the concentration levels due to the emissions from the coal pile. Turner's atmospheric dispersion equation (14) was then used to calculate the mass emission rate, Q, from the coal pile:

$$Q = \chi_y \sigma_z \pi u \qquad \text{(A-1)}$$

where χ = concentration with no effective plume rise
π = 3.14
$\sigma_y \sigma_z$ = horizontal and vertical dispersion as a function of downwind distance and atmospheric stability
u = mean wind speed

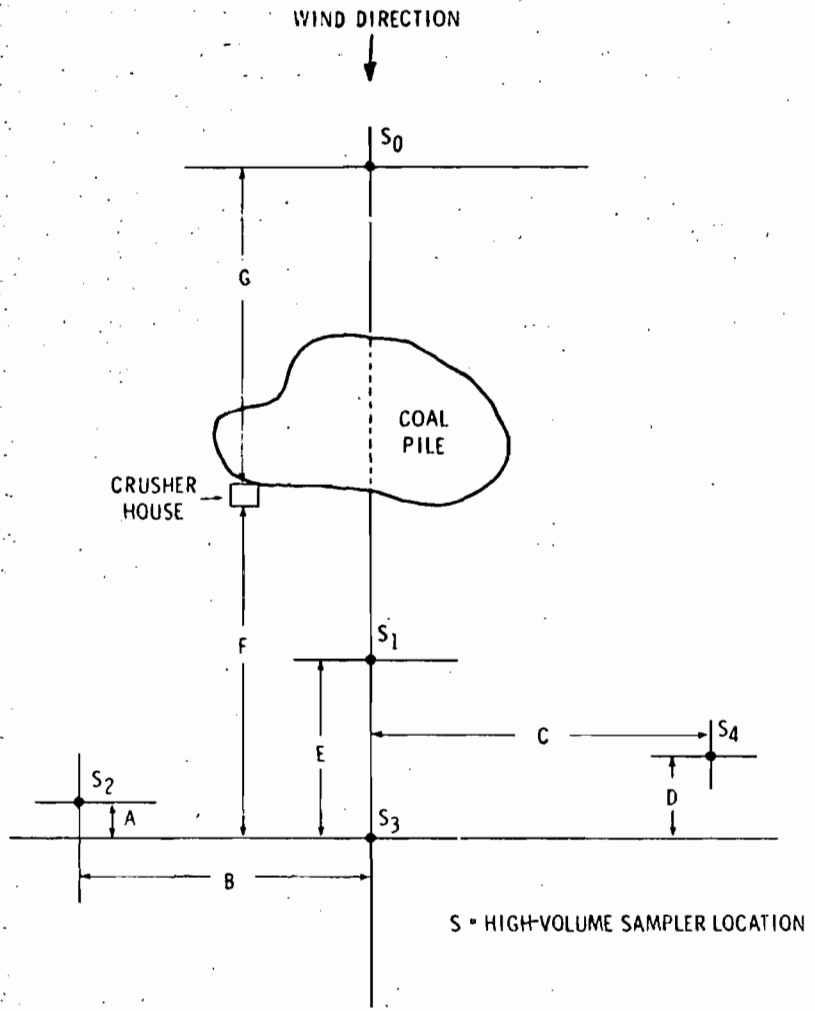


Figure A-1. March sampling arrangement, runs C1 and C2.

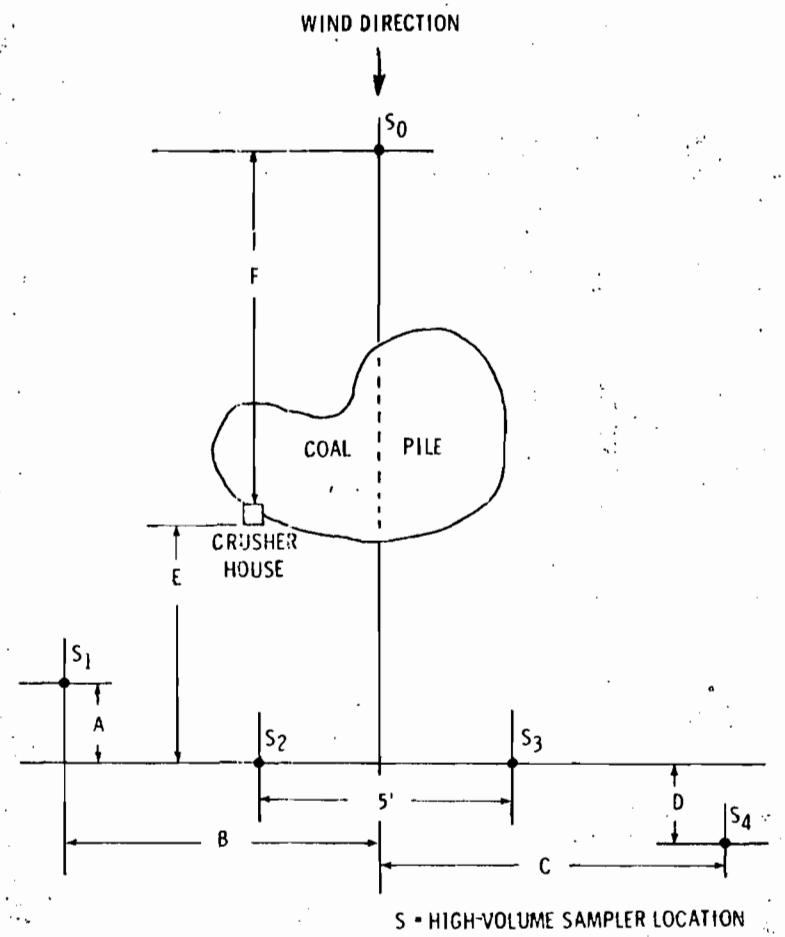


Figure A-2. August sampling arrangement, runs CS-3 and CS-5.

Figure A-1. March sampling arrangement, runs C1 and C2.

Figure A-2. August sampling arrangement, runs CS-3 and CS-5.

a. Mean Emission Factors

The mean emission factor for all the emission rates calculated at each of the sampler positions is 6.4 mg/kg-yr with a sample standard deviation of 2.54 (Table A-1). However, the errors associated with sampling and the use of Equation A-1 are combined as shown in Appendix E to yield an overall standard deviation of 4.3. Since confidence limits are calculated as follows,

$$\text{C.L. (@ 95\% level)} = \frac{t \cdot \sigma}{\sqrt{n}} \qquad \text{(A-2)}$$

where σ = estimated population deviation
t = "Student t" value for n-1 degrees of freedom @ 95% level
n = number of samples

and $\sigma = 4.3$
$n = 4$
$t = 3.182$

the 95% confidence limits are 6.9 using the emission factor of 6.4 mg/kg-yr.

b. Correlation With Factors Affecting Emissions

Emission rate is calculated from Equation B-18, Appendix B (shown here for reader convenience):

$$Q = \frac{k u^a \rho_b^b s^c}{(P-E)^d} \qquad \text{(A-3)}$$

where Q = emission rate, mg/s
k = constant
u = wind speed, m/s
ρ_b = bulk density, g/cm^3
s = surface area
$P-E$ = Thornthwaite's precipitation-evaporation index (or P-E index)

In order to apply this equation in determining the extent of emissions from all 950 coal piles, the most probable exponents were chosen from similar wind erosion studies performed on coal piles. In Appendix B, the following exponents for the parameters of Equation A-3 were presented:

$2.7 \leq a \leq 3.0$ (wind speed)
$2.0 \leq b \leq 5.9$ (bulk density)
$c = 0.\overline{345}$ (surface area)
$d = 2.0$ (P-E index)

TABLE A-1. SAMPLING RESULTS - MARCH AND AUGUST 1974

Run number		C1	C2	CS-3	CS-5
Date		3/28/74	3/27/74	8/20/74	8/22/74
Parameter		Value			
Wind speed, m/s		2.7	1.7	1.5	1.5
Wind direction, radians		+1.08	+0.633	-0.680	+0.140
	(°)	(+61.6)	(+36.3)	(-39)	(+8)
Wind direction range, radians		0.701	0.914	0.489	1.03
	(°)	(40.2)	(52.4)	(28)	(58.9)
Atmospheric stability class		B	B	B	B
Distance, m	A[a]	13.4	28.2	12.8	4.3
" "	B	37.5	44.8	41.1	30.5
" "	C	23.8	24.7	15.8	54.9
" "	D	13.4	26.5	7.6	3.0
" "	E	34.4	45.1	13.7	42.7
" " (estimated)	F	73.2	91.4	122	152
" " (estimated)	G	396	122	(none)[b]	(none)
Wet bulb temperature, °C		11.9	7.80	22.2	22.2
Dry bulb temperature °C		15.3	11.7	29.4	29.4
Barometric pressure, kPa		99.2	101	100	100
	(mm Hg)	(744)	(754)	(752)	(751)
Concentration at S_0, ug/m^3		75	55	58	138
" S_1 "		107	60	63	341
" S_2 "		127	84	83	420
" S_3 "		112	71	140	391
" S_4 "		106	55	89	262
Dust <10 μm,[c] %		100	100	100	100
Moisture in source, %		10	11	2.3	2.2
Emission rate, mg/s		22.4	12.9	14.2	41.3
Sample standard deviation, mg/s		15.1	7.10	11.4	13.2
Coal stored, 10^3 metric tons		89.4	89.4	134	134
Emission factor, mg/kg-yr		7.91	4.55	3.34	9.72

[a] See Figures A-1 and A-2.

[b] Elevated 4.6 m.

[c] See Appendix A.3. on particle size distribution.

Average emission factor = 6.38 mg/kg-yr
Sample standard deviation = 2.54 mg/kg-yr
Estimated population standard deviation = 2.94 mg/kg-yr

For wind speed, seven different studies were cited (Appendix B) relating the effect of wind speed to emission rate. Each of these studies was conducted over specified ranges of wind speed. Coal storage piles are subjected to mean wind speeds in the range of 1.3 to 6.7 m/s. For this range the effect on emission rate can be closely approximated by $Q \alpha u^3$. Therefore, u^3 can be established as the relationship representing the effect of wind speed. Two studies were cited (Appendix B) that relate the effect of bulk density to emission rate. The first study, by Singer, Cook, and Grumer (20), determined the effect on bulk density to be represented by $Q \alpha \rho_b^{5.9}$. However, this study was performed on "free-flowing" deposits of coal particles. These deposits were composed of particles between 100 μm and 150 μm in size. In the assessment of coal storage, from a hazard potential standpoint, only those particles within the respirable range (less than 7 μm) are of interest. Therefore, the effect of bulk density represented by $\rho_b^{5.9}$ is discarded. The second study was performed by Dawes (21) who related bulk density to emission rate as $Q \alpha \rho_b^2$. In this study no specific mention of the particle size range under analysis was cited; however, particles were classified as fine coal dust, which is the class of particles expected from coal storage emissions. Therefore, the effect of bulk density on emission rate in this study is represented by ρ_b^2.

Only one relationship was established for surface area, and this was obtained via regression analysis of the Singer, Cook, and Grumer study. Surface area was found to be related to emission rate by $Q \alpha s^{0.345}$.

The remaining parameter, Thornthwaite's precipitation-evaporation index, has also been analyzed by various investigators. All studies indicated that surface moisture, as represented by the P-E index (which has values for each climatic region), was approximated by $Q \alpha (P-E)^{-2}$. Therefore, Equation A-3, through the use of these most probable exponents, becomes:

$$Q = \frac{k u^3 \rho_b^2 s^{0.345}}{(P-E)^2} \qquad \text{(A-4)}$$

where k is a constant.

---

(20) Singer, J. M., F. B. Cook, and J. Gurmer. Dispersal of Coke and Rock Dust Deposits. Bureau of Mines RI-7642, U.S. Department of the Interior, Pittsburgh, Pennsylvania, 1972. 32 pp.

(21) Dawes, J. G. Dispersion of Dust Deposits by Blasts of Air-Part 1. Research Report No. 36, Ministry of Fuel and Power, Safety in Mines Research Establishment, Sheffield, England, May 1952. 69 pp.

To obtain the value of the constant without further sampling, the sampling results in Table A-1 were fitted to Equation A-4. The data (from Table A-1) used in calculating k from Equation A-4 are listed in Table A-2. The resulting arithmetic mean value of the constant k from the four runs is 336 with an estimated standard deviation of 200. Equation A-4 then becomes:

$$Q = (336)\ \frac{u^3 \rho_b{}^2 s^{0.345}}{(P-E)^2} \qquad \text{(A-5)}$$

where Q is in mg/s.

The error associated with the use of Equation A-5 must be corrected for the error in determining Q as shown in Appendix E. Therefore, the estimated population standard deviation becomes 261 and the 95% confidence limits are ±416.[a]

2. COMPOSITION

Filters were analyzed for major elements by x-ray fluorescence as described in Appendix D. Results of this analysis are given in Table A-3. In addition, an infrared analysis was performed for free silica and it was concluded that less than 1% is present in the dust samples.

3. PARTICLE SIZE ANALYSIS

The filters were subjected to microscopic evaluation as described in Appendix D. The results, reported in Table A-4, indicated few particles greater than 10 μm in size. Because of the low emission rate only one Brink® sample was obtained. Eighty-eight percent of the particles from a composite sample taken over the 2 sample days in August were less than 5 μm in size. Based upon this evidence, it is concluded that essentially all of the emissions are in the respirable range.

[a] This assumes that there are four samples taken. In reality the number lies between two and four for each parameter evaluated. Four was chosen to represent the best case for this error.

TABLE A-2. DATA FOR CALCULATION OF THE CONSTANT (k)

Run number Date		C1 3/28/74	C2 3/27/74	CS3 8/20/74	CS5 8/22/74
Parameter		Value			
Wind speed (u), m/s		2.7	1.7	1.5	1.5
Bulk density (ρ_b), g/cm^3		0.8	0.8	0.8	0.8
Quantity stored (W_t), 10^3	metric ton	89.4	89.4	134	134
Avg. pile height (h), m		3.6	3.6	4.6	4.6
Surface area (s), m^2		46,500	46,500	36,400	36,400
Weeks precipitation, mm		17.5	17.5	14.5	14.5
Avg. temperature, °C		15.3	11.7	29.4	28.3
P-E index (estimate)		60.5	70.7	30.8	31.8
Emission rate (Q), mg/s		22.4	12.9	14.2	41.3
k		159.7	503.1	166.5	516.1

Arithmetic mean value of k: 336
Standard deviation (estimate): 200

TABLE A-3. X-RAY FLUORESCENCE ANALYSIS OF SAMPLES FROM FILTERS

Element	Filter #2 g/m^2	Filter #9 g/m^2	Filter #11 g/m^2
Sodium	0.01	0.05	0.01
Magnesium	<0.01	<0.01	<0.01
Aluminum	a	a	a
Silicon	b	b	b
Sulfur	0.04	0.05	0.13[c]
Chlorine	<0.01	<0.01	<0.01
Potassium	<0.01	<0.01	<0.01
Copper	<0.02	<0.02	<0.02
Titanium	a	N.D.[d]	a
Chromium	a	N.D.	a
Manganese	a	N.D.	a
Iron	0.03	<0.01	0.02

[a]Denotes presence possible, but just above background, probably less than 0.001 g/m^2.

[b]Denotes presence likely, but unable to provide an estimate due to interference of tungsten in line (from x-ray tube) as well as high counts in this region from the Nucleopore® filter blank.

[c]No other metal seems to be associated with the increase in sulfur content. This may suggest presence of organic sulfur, sulfuric acid, etc.

[d]<0.0006 g/m^2.

TABLE A-4. PARTICLE SIZE ANALYSES

Sample B1		Sample B2	
Size range, μm	Number of particles	Size range, μm	Number of particles
0 to 1.2	102	0 to 1.2	93
1.2 to 2.4	123	1.2 to 2.4	106
2.4 to 4.8	34	2.4 to 4.8	31
4.8 to 9.6	16	4.8 to 9.6	14
9.6 to 19.2	5	9.6 to 19.2	4
19.2 to 38.4	3	19.2 to 38.4	0
38.4 to 76.8	0		
Wt. %[a]	0.10 / 0.76 / 1.67 / 6.29 / 15.72 / 75.46 / 0	Wt. %[a]	0.48 / 3.20 / 7.48 / 27.04 / 61.80 / 0
Fibers:	0	Fibers:	0

[a]These conversions of particle number to weight percent are estimates only and assume spherical particles of uniform density.

*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

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) =	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) =	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) =	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) =	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 (RURAL=0,URBAN MODE 1=1,URBAN MODE 2=2)	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) =	1
NUMBER OF INPUT SOURCES	NSOURC =	2
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 =	7
NUMBER OF Y (THETA) GRID VALUES	NYPNTS =	36
NUMBER OF DISCRETE RECEPTORS	NXWYPT =	0
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	TK =	.10000E 07
ENTRAINMENT COEFFICIENT FOR UNSTABLE ATMOSPHERE	BETA1 =	0.600
ENTRAINMENT COEFFICIENT FOR STABLE ATMOSPHERE	BETA2 =	0.600
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED ZR = 7.00	METERS	
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET =	9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION DECAY = 0.000000E 00		
SURFACE STATION NO.	ISS =	12842
YEAR OF SURFACE DATA	ISY =	70
UPPER AIR STATION NO.	IUS =	12842
YEAR OF UPPER AIR DATA	IUY =	70
ALLOCATED DATA STORAGE	LIMIT =	43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT =	3749 WORDS

*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

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

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1111111111 11111¶

*** 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	.10000E 00	.10000E 00	.10000E 00	.10000E 00	.10000E 00	.10000E 00
B	.15000E 00	.15000E 00	.15000E 00	.15000E 00	.15000E 00	.15000E 00
C	.20000E 00	.20000E 00	.20000E 00	.20000E 00	.20000E 00	.20000E 00
D	.25000E 00	.25000E 00	.25000E 00	.25000E 00	.25000E 00	.25000E 00
E	.30000E 00	.30000E 00	.30000E 00	.30000E 00	.30000E 00	.30000E 00
F	.30000E 00	.30000E 00	.30000E 00	.30000E 00	.30000E 00	.30000E 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

*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

*** RANGES OF POLAR GRID SYSTEM ***

(METERS)

100.0, 200.0, 300.0, 400.0, 500.0, 750.0, 1000.0,

*** 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,

*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

SOURCE # 1---OIL HEATER
SOURCE # 2---SWEEP DRYER

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (G/S) TYPE=2 (G/S) *PER M**2	X (M)	Y (M)	BASE ELEV. (M)	HEIGHT (M)	TEMP. TYPE=0 (DEG.K) VERT.DIM. TYPE=1 (M)	EXIT VEL. TYPE=0 (M/S) HORZ.DIM. TYPE=1,2 (M)	DIAM. TYPE=0 (M)	BLDG. HEIGHT TYPE=0 (M)	BLDG. LENGTH TYPE=0 (M)	BLDG. WIDTH TYPE=0 (M)
1	0	0	0	0.6200	-52.0	35.0	0.0	9.14	561.0	8.60	0.36	0.00	0.00	0.00
2	0	0	0	3.5600	0.0	0.0	0.0	22.90	366.0	26.70	0.35	0.00	0.00	0.00

*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

* SOURCE-RECEPTOR COMBINATIONS LESS THAN 100 METERS OR THREE BUILDING HEIGHTS IN DISTANCE. NO AVERAGE CONCENTRATION IS CALCULATED *

NUMBER	- - RECEPTOR LOCATION - - X (METERS)	Y (METERS) SOURCE (DEGREES)	DISTANCE OR RANGE (METERS)	OR DIRECTION	BETWEEN
1	100.0	10.0	94.03		
1	100.0	240.0	91.77		
1	100.0	250.0	80.93		
1	100.0	260.0	70.02		
1	100.0	270.0	59.41		
1	100.0	280.0	49.71		
1	100.0	290.0	41.98		
1	100.0	300.0	37.71		
1	100.0	310.0	38.24		
1	100.0	320.0	43.38		
1	100.0	330.0	51.64		
1	100.0	340.0	61.60		
1	100.0	350.0	72.31		
1	100.0	360.0	83.24		

'N'-DAY
365 DAYS
SGROUP# 1
YEAR 1970
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 4.9 AND OCCURRED AT (300.0, 90.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0	750.0	1000.0
360.0 /	0.1	2.5	2.5	2.2	1.9	1.4	1.0
350.0 /	0.1	2.1	2.1	1.8	1.5	1.0	0.7
340.0 /	0.1	1.9	2.2	2.1	1.9	1.4	1.1
330.0 /	0.1	2.3	3.1	3.0	2.7	2.0	1.6
320.0 /	0.1	2.7	3.4	3.1	2.7	1.9	1.5
310.0 /	0.1	2.8	3.5	3.2	2.8	2.0	1.6
300.0 /	0.1	3.2	4.3	4.1	3.7	2.8	2.3
290.0 /	0.1	3.0	4.1	3.8	3.4	2.5	2.0
280.0 /	0.1	3.3	4.7	4.5	4.1	3.2	2.6
270.0 /	0.1	2.7	4.3	4.7	4.5	3.7	3.1
260.0 /	0.1	2.4	3.3	3.2	3.0	2.4	2.1
250.0 /	0.1	2.2	3.1	3.0	2.7	2.2	1.9
240.0 /	0.1	2.0	2.7	2.9	2.8	2.3	2.0
230.0 /	0.4	1.8	2.3	2.3	2.2	1.7	1.5
220.0 /	0.5	1.4	1.9	2.0	1.8	1.4	1.1
210.0 /	0.6	1.3	1.6	1.7	1.6	1.3	1.1
200.0 /	0.7	1.2	1.3	1.3	1.2	1.0	0.8
190.0 /	0.8	1.3	1.4	1.3	1.2	0.9	0.7
180.0 /	0.9	1.3	1.5	1.5	1.5	1.2	1.1
170.0 /	1.0	1.4	1.5	1.4	1.3	1.0	0.8
160.0 /	1.1	1.5	1.7	1.6	1.5	1.2	1.0
150.0 /	1.1	1.7	1.9	1.8	1.7	1.4	1.1
140.0 /	1.1	1.7	1.9	2.0	1.9	1.5	1.2
130.0 /	1.1	1.7	1.9	2.0	1.9	1.5	1.2
120.0 /	1.1	1.6	1.7	1.7	1.6	1.3	1.0
110.0 /	1.1	1.7	1.8	1.8	1.6	1.2	0.9
100.0 /	1.2	2.7	3.1	2.8	2.5	1.7	1.2
90.0 /	1.7	4.2	4.9	4.5	4.0	2.7	2.0
80.0 /	2.5	4.5	4.3	3.5	2.8	1.7	1.1
70.0 /	3.0	3.5	2.9	2.4	1.9	1.2	0.8
60.0 /	2.6	2.7	2.5	2.2	1.8	1.2	0.9
50.0 /	1.9	2.3	2.3	2.0	1.7	1.2	0.9
40.0 /	1.6	2.2	2.2	2.0	1.7	1.2	0.9
30.0 /	1.3	2.3	2.5	2.3	2.1	1.5	1.1
20.0 /	1.1	2.4	2.9	2.7	2.4	1.6	1.2
10.0 /	0.1	2.6	2.8	2.5	2.2	1.5	1.1

2ND HIGH
3-HR 1970
SGROUP# 1
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 145.7 AND OCCURRED AT (300.0, 300.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0
360.0 /	21.3 (133, 4)	97.5 (127, 4)	100.1 (127, 4)	79.0 (127, 4)	73.6 (225, 3)
350.0 /	15.5 (134, 4)	101.0 (127, 4)	74.9 (287, 4)	71.1 (225, 3)	72.4 (173, 3)
340.0 /	12.9 (128, 4)	90.3 (215, 6)	97.0 (215, 6)	98.1 (254, 3)	81.2 (85, 6)
330.0 /	12.5 (107, 4)	105.5 (287, 4)	110.2 (302, 5)	98.4 (287, 4)	88.0 (84, 7)
320.0 /	15.2 (213, 5)	110.5 (195, 4)	112.2 (107, 4)	87.6 (25, 4)	84.6 (347, 3)
310.0 /	18.5 (106, 5)	123.9 (106, 5)	125.3 (210, 4)	112.4 (276, 4)	100.4 (32, 6)
300.0 /	17.7 (227, 4)	143.3 (227, 4)	145.7 (205, 4)	127.4 (286, 5)	120.0 (286, 5)
290.0 /	19.6 (227, 4)	101.5 (244, 4)	106.2 (227, 5)	99.5 (5, 8)	100.0 (5, 8)
280.0 /	13.5 (239, 4)	105.3 (182, 6)	105.5 (243, 6)	106.5 (140, 6)	102.3 (140, 6)
270.0 /	21.7 (120, 5)	98.3 (352, 4)	104.4 (352, 4)	91.2 (5, 6)	93.1 (280, 7)
260.0 /	23.6 (239, 4)	88.2 (24, 5)	106.3 (352, 4)	99.1 (352, 4)	85.2 (256, 6)
250.0 /	13.5 (239, 4)	89.7 (166, 4)	89.7 (181, 4)	86.8 (283, 4)	78.1 (273, 6)
240.0 /	14.7 (210, 4)	87.4 (244, 5)	96.5 (274, 6)	99.8 (277, 5)	95.1 (268, 7)
230.0 /	33.3 (126, 4)	71.9 (22, 4)	80.4 (360, 4)	72.4 (168, 4)	68.4 (35, 6)
220.0 /	41.2 (304, 4)	72.7 (216, 3)	80.2 (329, 4)	77.7 (360, 4)	75.9 (37, 2)
210.0 /	49.0 (21, 5)	75.8 (164, 4)	78.9 (341, 4)	72.2 (82, 3)	64.7 (341, 4)
200.0 /	45.0 (321, 4)	64.5 (21, 4)	64.0 (304, 5)	64.1 (322, 4)	59.9 (304, 5)
190.0 /	42.7 (321, 5)	69.1 (164, 4)	78.7 (251, 6)	68.0 (251, 6)	63.8 (333, 4)
180.0 /	45.7 (351, 5)	58.3 (299, 5)	72.3 (21, 5)	71.4 (3, 8)	73.3 (21, 4)
170.0 /	57.8 (217, 3)	67.3 (351, 5)	70.2 (299, 5)	62.3 (161, 7)	53.1 (340, 4)
160.0 /	47.2 (160, 5)	79.5 (321, 5)	84.6 (321, 5)	70.5 (160, 5)	71.1 (171, 6)
150.0 /	43.1 (34, 4)	93.3 (160, 5)	113.4 (217, 3)	103.5 (217, 3)	88.2 (160, 6)
140.0 /	48.7 (73, 1)	62.8 (217, 4)	71.5 (160, 6)	78.8 (200, 3)	77.0 (49, 1)
130.0 /	48.6 (43, 4)	69.2 (72, 2)	83.6 (72, 2)	83.7 (72, 3)	85.7 (72, 3)
120.0 /	51.8 (96, 5)	68.4 (185, 5)	74.4 (68, 2)	83.3 (73, 8)	82.7 (73, 8)
110.0 /	48.3 (184, 5)	82.5 (183, 6)	81.4 (185, 5)	83.1 (237, 4)	73.8 (183, 6)
100.0 /	49.5 (185, 5)	95.5 (187, 3)	103.9 (156, 5)	90.8 (187, 3)	76.4 (352, 6)
90.0 /	62.2 (157, 5)	113.1 (207, 4)	129.1 (188, 6)	107.5 (188, 6)	89.0 (353, 5)
80.0 /	70.1 (146, 6)	118.1 (198, 4)	116.7 (170, 4)	94.3 (137, 5)	78.4 (170, 5)
70.0 /	75.7 (162, 5)	142.7 (119, 4)	116.1 (119, 4)	82.5 (119, 4)	73.9 (114, 6)
60.0 /	73.9 (147, 5)	103.4 (170, 4)	86.1 (65, 5)	78.9 (101, 5)	72.4 (359, 7)
50.0 /	75.0 (99, 5)	79.0 (196, 5)	75.9 (209, 4)	70.8 (223, 7)	76.6 (229, 6)
40.0 /	70.6 (170, 4)	77.8 (196, 5)	71.6 (196, 5)	72.9 (146, 3)	73.2 (146, 3)
30.0 /	62.2 (65, 5)	87.0 (219, 4)	89.0 (77, 5)	88.2 (223, 8)	92.0 (223, 8)
20.0 /	50.8 (100, 5)	83.1 (111, 5)	87.3 (101, 6)	74.2 (90, 4)	76.5 (23, 7)
10.0 /	18.9 (248, 4)	89.7 (208, 5)	86.7 (90, 4)	73.0 (87, 4)	66.7 (189, 7)

2ND HIGH
24-HR 1970
SGROUP# 1
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

* SECOND HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 37.9 AND OCCURRED AT (300.0, 300.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0
360.0 /	3.4 (231, 1)	19.3 (127, 1)	21.7 (87, 1)	20.9 (87, 1)	19.6 (88, 1)
350.0 /	2.6 (214, 1)	16.9 (208, 1)	16.3 (208, 1)	16.4 (85, 1)	17.8 (89, 1)
340.0 /	2.5 (213, 1)	17.3 (194, 1)	23.8 (85, 1)	27.8 (213, 1)	27.0 (33, 1)
330.0 /	2.8 (107, 1)	26.5 (195, 1)	24.8 (85, 1)	23.9 (203, 1)	25.6 (203, 1)
320.0 /	2.4 (213, 1)	26.5 (154, 1)	27.5 (154, 1)	21.7 (203, 1)	19.9 (203, 1)
310.0 /	3.0 (244, 1)	25.2 (106, 1)	25.3 (180, 1)	22.4 (252, 1)	19.3 (180, 1)
300.0 /	3.4 (243, 1)	27.3 (252, 1)	37.9 (153, 1)	37.1 (205, 1)	30.2 (205, 1)
290.0 /	3.5 (244, 1)	28.7 (266, 1)	35.4 (266, 1)	36.0 (149, 1)	32.9 (149, 1)
280.0 /	2.3 (244, 1)	30.2 (138, 1)	33.0 (140, 1)	32.5 (144, 1)	33.4 (143, 1)
270.0 /	3.0 (239, 1)	24.1 (269, 1)	34.5 (269, 1)	34.4 (280, 1)	32.8 (138, 1)
260.0 /	3.0 (239, 1)	21.2 (181, 1)	26.8 (120, 1)	24.1 (290, 1)	21.5 (269, 1)
250.0 /	2.3 (244, 1)	20.9 (272, 1)	29.9 (273, 1)	28.6 (273, 1)	25.6 (273, 1)
240.0 /	2.3 (165, 1)	22.2 (277, 1)	29.6 (38, 1)	31.4 (273, 1)	32.5 (273, 1)
230.0 /	6.0 (3, 1)	15.0 (341, 1)	21.7 (36, 1)	29.3 (37, 1)	24.8 (272, 1)
220.0 /	7.0 (304, 1)	13.6 (3, 1)	17.4 (3, 1)	19.2 (2, 1)	19.1 (2, 1)
210.0 /	8.7 (321, 1)	16.9 (182, 1)	16.3 (58, 1)	18.4 (2, 1)	18.7 (2, 1)
200.0 /	10.6 (321, 1)	14.1 (320, 1)	17.8 (320, 1)	21.4 (320, 1)	22.0 (320, 1)
190.0 /	10.3 (97, 1)	18.4 (1, 1)	20.4 (21, 1)	20.4 (320, 1)	19.8 (320, 1)
180.0 /	13.1 (171, 1)	17.0 (21, 1)	18.0 (1, 1)	22.2 (1, 1)	22.7 (1, 1)
170.0 /	13.5 (57, 1)	18.1 (171, 1)	17.0 (321, 1)	14.5 (1, 1)	15.1 (1, 1)
160.0 /	13.8 (160, 1)	20.0 (160, 1)	24.7 (171, 1)	22.7 (171, 1)	19.5 (171, 1)
150.0 /	12.7 (34, 1)	23.4 (160, 1)	25.3 (217, 1)	26.6 (217, 1)	25.3 (217, 1)
140.0 /	17.6 (81, 1)	19.8 (81, 1)	19.0 (81, 1)	22.6 (7, 1)	22.4 (72, 1)
130.0 /	17.1 (81, 1)	23.1 (81, 1)	27.5 (81, 1)	30.8 (81, 1)	30.6 (81, 1)
120.0 /	16.4 (96, 1)	23.1 (96, 1)	26.6 (96, 1)	24.9 (96, 1)	21.9 (96, 1)
110.0 /	15.3 (73, 1)	18.6 (48, 1)	19.7 (48, 1)	20.1 (48, 1)	18.8 (48, 1)
100.0 /	10.6 (156, 1)	22.8 (157, 1)	25.6 (157, 1)	24.8 (157, 1)	21.6 (42, 1)
90.0 /	14.2 (157, 1)	36.5 (190, 1)	37.6 (187, 1)	31.5 (187, 1)	25.6 (187, 1)
80.0 /	19.6 (146, 1)	31.4 (190, 1)	29.1 (158, 1)	32.6 (198, 1)	25.7 (198, 1)
70.0 /	22.1 (158, 1)	28.1 (161, 1)	23.5 (119, 1)	17.0 (145, 1)	17.1 (298, 1)
60.0 /	19.8 (158, 1)	23.3 (186, 1)	18.0 (119, 1)	17.5 (223, 1)	17.6 (359, 1)
50.0 /	15.5 (178, 1)	15.5 (235, 1)	25.3 (222, 1)	32.9 (222, 1)	33.7 (222, 1)
40.0 /	13.0 (161, 1)	19.0 (223, 1)	30.0 (222, 1)	31.9 (222, 1)	31.4 (222, 1)
30.0 /	14.2 (119, 1)	22.9 (222, 1)	24.3 (222, 1)	28.9 (223, 1)	27.8 (223, 1)
20.0 /	8.2 (117, 1)	21.8 (238, 1)	23.0 (224, 1)	21.1 (79, 1)	20.1 (63, 1)
10.0 /	2.5 (127, 1)	20.0 (79, 1)	24.3 (88, 1)	23.8 (88, 1)	21.9 (318, 1)

N-DAY
365 DAYS
SGROUP# 1
YEAR 1971
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30* & 75* ***

* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 6.4 AND OCCURRED AT (300.0, 90.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0	750.0	1000.0
360.0 /	0.1	2.3	2.5	2.4	2.2	1.7	1.3
350.0 /	0.1	2.0	2.1	1.8	1.5	1.1	0.9
340.0 /	0.1	1.8	2.2	2.2	2.0	1.6	1.2
330.0 /	0.1	2.3	3.4	3.4	3.1	2.4	1.9
320.0 /	0.1	2.4	3.0	2.8	2.4	1.8	1.4
310.0 /	0.1	2.1	2.9	2.7	2.4	1.8	1.5
300.0 /	0.1	2.5	3.5	3.5	3.2	2.6	2.3
290.0 /	0.1	2.3	3.0	2.9	2.6	2.0	1.7
280.0 /	0.1	2.6	3.4	3.2	2.9	2.2	1.9
270.0 /	0.1	2.3	3.4	3.5	3.3	2.7	2.3
260.0 /	0.0	2.1	2.8	2.8	2.6	2.1	1.8
250.0 /	0.0	2.1	2.7	2.6	2.4	1.9	1.6
240.0 /	0.1	1.9	2.8	2.9	2.7	2.1	1.8
230.0 /	0.3	1.8	2.3	2.4	2.3	2.0	1.7
220.0 /	0.4	1.3	1.9	1.9	1.8	1.4	1.1
210.0 /	0.6	1.1	1.4	1.5	1.5	1.2	1.1
200.0 /	0.6	1.1	1.1	1.1	1.0	0.8	0.6
190.0 /	0.8	1.2	1.3	1.2	1.1	0.9	0.7
180.0 /	0.9	1.3	1.4	1.4	1.4	1.2	1.1
170.0 /	1.0	1.5	1.6	1.5	1.3	1.0	0.8
160.0 /	1.0	1.6	1.8	1.8	1.6	1.3	1.1
150.0 /	1.0	1.5	1.8	1.8	1.7	1.4	1.2
140.0 /	1.0	1.4	1.6	1.7	1.6	1.3	1.1
130.0 /	1.0	1.5	1.6	1.6	1.5	1.2	1.0
120.0 /	1.2	1.8	2.0	2.0	1.9	1.4	1.1
110.0 /	1.4	2.4	2.5	2.3	2.0	1.4	1.0
100.0 /	1.8	3.8	4.3	3.9	3.4	2.3	1.6
90.0 /	2.5	5.6	6.4	5.9	5.1	3.5	2.5
80.0 /	3.5	5.6	5.0	4.0	3.2	1.9	1.2
70.0 /	3.8	3.8	3.2	2.5	2.0	1.3	0.9
60.0 /	3.1	2.9	2.6	2.2	1.9	1.4	1.0
50.0 /	2.2	2.6	2.6	2.2	1.8	1.2	0.9
40.0 /	1.7	2.5	2.3	1.9	1.6	1.0	0.7
30.0 /	1.4	2.3	2.4	2.2	1.9	1.4	1.0
20.0 /	1.2	2.2	2.7	2.6	2.4	1.7	1.2
10.0 /	0.1	2.4	2.9	2.6	2.3	1.6	1.2

2ND HIGH
3-HR 1971
SGROUP# 1
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 141.4 AND OCCURRED AT (200.0, 90.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0
360.0 /	20.4 (229, 4)	99.8 (260, 4)	109.5 (229, 4)	84.1 (229, 4)	90.3 (227, 5)
350.0 /	21.9 (211, 4)	105.0 (229, 4)	87.6 (229, 4)	63.6 (37, 4)	57.9 (260, 4)
340.0 /	14.3 (218, 5)	92.1 (241, 5)	111.3 (241, 5)	93.8 (241, 5)	88.7 (216, 6)
330.0 /	13.0 (218, 4)	100.6 (200, 3)	120.7 (77, 5)	99.6 (77, 5)	97.5 (216, 6)
320.0 /	17.6 (218, 4)	109.0 (218, 4)	117.3 (184, 3)	90.6 (250, 4)	81.3 (250, 4)
310.0 /	12.5 (181, 4)	100.7 (262, 4)	104.1 (202, 6)	96.8 (202, 6)	88.3 (257, 2)
300.0 /	18.6 (182, 4)	128.2 (191, 4)	113.2 (278, 4)	115.0 (307, 3)	124.4 (343, 3)
290.0 /	33.6 (191, 4)	134.4 (191, 4)	106.9 (281, 5)	114.5 (233, 4)	95.3 (288, 3)
280.0 /	34.8 (191, 4)	110.4 (263, 4)	118.1 (176, 6)	99.1 (176, 6)	99.9 (244, 6)
270.0 /	19.1 (191, 4)	86.9 (176, 6)	107.2 (265, 4)	105.9 (248, 4)	97.4 (248, 4)
260.0 /	8.7 (190, 5)	83.7 (267, 5)	102.2 (360, 4)	96.4 (241, 6)	88.8 (232, 4)
250.0 /	7.9 (231, 5)	70.1 (270, 4)	94.4 (285, 4)	84.8 (285, 4)	91.9 (360, 2)
240.0 /	10.5 (231, 5)	78.2 (273, 4)	85.8 (156, 4)	81.6 (269, 3)	77.8 (270, 3)
230.0 /	31.9 (41, 5)	82.2 (273, 4)	96.5 (270, 4)	83.6 (270, 4)	73.4 (267, 3)
220.0 /	36.4 (41, 5)	79.0 (18, 4)	87.0 (142, 5)	70.0 (18, 4)	74.5 (32, 6)
210.0 /	42.4 (124, 5)	71.4 (263, 5)	71.5 (329, 4)	79.1 (329, 4)	74.6 (329, 4)
200.0 /	46.2 (99, 4)	64.8 (41, 5)	69.8 (275, 4)	63.1 (301, 5)	67.4 (301, 5)
190.0 /	48.8 (169, 4)	72.9 (221, 4)	71.5 (275, 4)	59.2 (20, 1)	62.5 (13, 2)
180.0 /	50.7 (124, 6)	70.5 (221, 4)	78.6 (181, 6)	70.7 (301, 4)	76.4 (301, 4)
170.0 /	50.1 (222, 5)	79.3 (169, 4)	91.6 (181, 6)	85.2 (208, 6)	67.8 (208, 6)
160.0 /	54.1 (222, 4)	75.8 (121, 4)	67.8 (136, 3)	72.2 (169, 4)	66.6 (9, 8)
150.0 /	53.8 (199, 6)	81.7 (199, 6)	78.9 (222, 4)	75.8 (221, 5)	66.9 (262, 6)
140.0 /	55.3 (104, 4)	83.4 (104, 4)	93.9 (199, 6)	79.5 (199, 6)	68.4 (275, 6)
130.0 /	44.8 (123, 4)	70.4 (123, 4)	80.7 (194, 6)	68.2 (194, 6)	62.4 (215, 5)
120.0 /	60.3 (136, 4)	90.7 (136, 4)	77.3 (198, 4)	72.7 (337, 7)	67.6 (141, 3)
110.0 /	55.2 (198, 4)	86.7 (274, 4)	91.5 (165, 3)	80.3 (173, 3)	73.4 (220, 6)
100.0 /	68.6 (204, 5)	115.8 (183, 5)	112.6 (298, 4)	103.3 (240, 6)	87.5 (172, 6)
90.0 /	75.0 (183, 5)	141.4 (230, 5)	121.5 (179, 6)	106.6 (296, 6)	102.3 (296, 6)
80.0 /	77.1 (230, 5)	117.2 (238, 5)	123.0 (232, 5)	104.6 (232, 5)	83.0 (232, 5)
70.0 /	82.2 (238, 5)	104.0 (229, 6)	104.0 (237, 4)	103.9 (229, 6)	81.9 (229, 6)
60.0 /	72.2 (254, 4)	107.3 (200, 4)	88.0 (200, 4)	72.0 (119, 3)	59.3 (224, 4)
50.0 /	64.4 (232, 5)	98.5 (234, 4)	92.5 (200, 4)	77.9 (219, 6)	63.7 (219, 6)
40.0 /	55.9 (207, 5)	104.5 (201, 5)	107.5 (201, 5)	83.7 (201, 5)	62.3 (201, 5)
30.0 /	58.9 (200, 4)	97.5 (146, 4)	93.7 (127, 4)	77.1 (8, 5)	66.7 (263, 6)
20.0 /	49.1 (199, 5)	89.0 (219, 5)	92.1 (236, 5)	83.1 (286, 6)	85.1 (282, 6)
10.0 /	13.8 (236, 5)	77.1 (331, 5)	87.7 (201, 4)	85.2 (201, 4)	75.7 (75, 1)

2ND HIGH
24-HR 1971
SGROUP# 1
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

* SECOND HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 39.9 AND OCCURRED AT (400.0, 90.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0
360.0 /	3.2 (229, 1)	22.8 (229, 1)	19.2 (31, 1)	21.9 (72, 1)	23.9 (227, 1)
350.0 /	2.8 (211, 1)	21.7 (229, 1)	17.8 (260, 1)	14.9 (37, 1)	14.5 (176, 1)
340.0 /	1.9 (260, 1)	19.0 (260, 1)	19.1 (259, 1)	18.5 (187, 1)	15.8 (216, 1)
330.0 /	2.1 (218, 1)	19.1 (230, 1)	27.1 (185, 1)	28.7 (185, 1)	26.2 (185, 1)
320.0 /	2.2 (218, 1)	19.5 (218, 1)	22.9 (332, 1)	22.8 (332, 1)	17.3 (230, 1)
310.0 /	1.7 (230, 1)	20.9 (278, 1)	22.4 (181, 1)	20.0 (209, 1)	19.3 (193, 1)
300.0 /	2.5 (138, 1)	25.0 (231, 1)	27.3 (231, 1)	30.9 (353, 1)	30.6 (353, 1)
290.0 /	4.3 (231, 1)	24.8 (191, 1)	26.8 (231, 1)	26.4 (143, 1)	23.3 (143, 1)
280.0 /	4.4 (191, 1)	29.1 (231, 1)	29.5 (247, 1)	27.3 (247, 1)	22.0 (101, 1)
270.0 /	2.6 (190, 1)	23.1 (156, 1)	31.4 (94, 1)	29.5 (265, 1)	26.2 (265, 1)
260.0 /	2.1 (190, 1)	20.7 (267, 1)	23.6 (156, 1)	24.6 (153, 1)	24.5 (33, 1)
250.0 /	1.1 (276, 1)	21.5 (270, 1)	23.5 (267, 1)	25.1 (156, 1)	22.9 (284, 1)
240.0 /	1.6 (164, 1)	19.8 (142, 1)	24.1 (270, 1)	25.5 (293, 1)	24.8 (270, 1)
230.0 /	5.1 (164, 1)	21.6 (308, 1)	25.5 (272, 1)	25.9 (272, 1)	24.1 (320, 1)
220.0 /	8.9 (124, 1)	14.7 (329, 1)	24.4 (308, 1)	22.3 (7, 1)	21.0 (356, 1)
210.0 /	8.4 (124, 1)	13.9 (41, 1)	18.3 (41, 1)	23.2 (308, 1)	25.1 (329, 1)
200.0 /	6.6 (208, 1)	12.8 (221, 1)	16.2 (315, 1)	15.0 (315, 1)	15.1 (20, 1)
190.0 /	11.1 (89, 1)	16.5 (226, 1)	18.2 (20, 1)	16.7 (226, 1)	14.2 (226, 1)
180.0 /	14.0 (89, 1)	13.6 (121, 1)	17.4 (221, 1)	15.1 (19, 1)	14.9 (71, 1)
170.0 /	14.9 (222, 1)	15.9 (89, 1)	16.2 (226, 1)	17.9 (121, 1)	15.5 (121, 1)
160.0 /	13.9 (222, 1)	21.6 (222, 1)	22.0 (222, 1)	19.3 (89, 1)	18.7 (89, 1)
150.0 /	11.9 (63, 1)	16.9 (221, 1)	22.5 (222, 1)	20.4 (121, 1)	18.9 (121, 1)
140.0 /	9.9 (136, 1)	14.0 (136, 1)	14.9 (222, 1)	15.2 (280, 1)	14.1 (136, 1)
130.0 /	14.8 (198, 1)	18.9 (79, 1)	18.2 (198, 1)	16.0 (141, 1)	14.6 (45, 1)
120.0 /	15.7 (198, 1)	24.7 (198, 1)	21.4 (44, 1)	23.3 (44, 1)	22.6 (44, 1)
110.0 /	14.5 (44, 1)	21.6 (220, 1)	22.1 (220, 1)	22.7 (96, 1)	19.6 (183, 1)
100.0 /	15.4 (183, 1)	27.9 (183, 1)	27.8 (165, 1)	26.9 (165, 1)	24.2 (254, 1)
90.0 /	17.6 (183, 1)	34.1 (220, 1)	35.8 (128, 1)	39.9 (166, 1)	37.8 (167, 1)
80.0 /	20.1 (178, 1)	31.7 (167, 1)	25.5 (166, 1)	20.6 (167, 1)	18.3 (196, 1)
70.0 /	22.0 (166, 1)	17.8 (179, 1)	18.0 (280, 1)	16.4 (118, 1)	15.7 (118, 1)
60.0 /	16.9 (128, 1)	16.3 (159, 1)	20.6 (114, 1)	24.3 (114, 1)	23.7 (114, 1)
50.0 /	10.5 (257, 1)	17.7 (205, 1)	17.9 (114, 1)	16.2 (118, 1)	15.2 (205, 1)
40.0 /	11.4 (118, 1)	19.1 (114, 1)	19.7 (112, 1)	16.5 (112, 1)	15.3 (116, 1)
30.0 /	9.5 (224, 1)	20.9 (201, 1)	21.3 (331, 1)	19.0 (331, 1)	15.5 (331, 1)
20.0 /	9.6 (159, 1)	18.2 (201, 1)	23.5 (228, 1)	20.5 (113, 1)	21.8 (30, 1)
10.0 /	2.5 (260, 1)	18.0 (236, 1)	24.9 (228, 1)	22.3 (228, 1)	20.1 (228, 1)

'N'-DAY
366 DAYS
SGROUP# 1
YEAR 1972
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30' & 75' ***

* 366-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 5.7 AND OCCURRED AT (300.0, 90.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0	750.0	1000.0
360.0 /	0.0	2.1	2.1	2.0	1.8	1.3	1.0
350.0 /	0.0	1.6	1.8	1.6	1.4	1.0	0.8
340.0 /	0.0	1.4	1.8	1.8	1.7	1.3	1.0
330.0 /	0.1	1.7	2.5	2.4	2.2	1.6	1.3
320.0 /	0.1	1.9	2.5	2.4	2.1	1.5	1.1
310.0 /	0.1	1.9	2.7	2.6	2.3	1.7	1.4
300.0 /	0.1	2.2	3.0	2.9	2.5	1.9	1.6
290.0 /	0.1	2.6	3.4	3.2	2.8	2.1	1.8
280.0 /	0.1	3.3	4.7	4.4	3.9	2.9	2.3
270.0 /	0.1	3.0	4.6	4.8	4.5	3.7	3.2
260.0 /	0.1	2.9	3.8	3.8	3.5	2.9	2.5
250.0 /	0.1	2.9	3.8	3.7	3.3	2.7	2.3
240.0 /	0.1	2.4	3.5	3.6	3.4	2.7	2.3
230.0 /	0.4	2.0	2.9	3.0	2.8	2.3	2.0
220.0 /	0.5	1.5	2.2	2.3	2.2	1.7	1.4
210.0 /	0.7	1.3	1.6	1.6	1.6	1.3	1.1
200.0 /	0.7	1.3	1.3	1.2	1.1	0.9	0.7
190.0 /	0.7	1.5	1.5	1.4	1.2	0.9	0.8
180.0 /	0.8	1.3	1.6	1.6	1.5	1.2	1.0
170.0 /	0.9	1.4	1.5	1.4	1.3	1.0	0.8
160.0 /	0.9	1.4	1.6	1.5	1.4	1.1	0.9
150.0 /	0.9	1.4	1.7	1.7	1.6	1.3	1.1
140.0 /	0.9	1.3	1.6	1.6	1.6	1.3	1.1
130.0 /	1.0	1.5	1.7	1.7	1.6	1.3	1.0
120.0 /	0.9	1.5	1.6	1.6	1.5	1.1	0.9
110.0 /	1.1	2.0	2.3	2.2	2.0	1.5	1.1
100.0 /	1.6	3.4	3.9	3.6	3.2	2.2	1.6
90.0 /	2.3	5.0	5.7	5.4	4.7	3.3	2.3
80.0 /	3.1	5.2	4.7	3.9	3.2	2.0	1.4
70.0 /	3.5	3.9	3.3	2.7	2.2	1.4	1.0
60.0 /	2.9	3.1	2.9	2.4	2.0	1.3	1.0
50.0 /	2.2	2.7	2.6	2.1	1.8	1.2	0.9
40.0 /	1.7	2.4	2.2	1.9	1.6	1.1	0.8
30.0 /	1.4	2.2	2.3	2.1	1.9	1.4	1.0
20.0 /	1.2	2.1	2.6	2.6	2.3	1.7	1.2
10.0 /	0.1	2.2	2.6	2.3	2.0	1.4	1.0

2ND HIGH 1972
3-HR
SGROUP# 1
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 153.0 AND OCCURRED AT (300.0, 120.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0
360.0 /	9.6 (235, 4)	72.1 (136, 4)	76.7 (113, 5)	82.7 (236, 4)	79.8 (28, 4)
350.0 /	9.0 (139, 4)	63.4 (64, 4)	70.6 (54, 4)	98.4 (309, 3)	80.8 (236, 4)
340.0 /	8.9 (240, 5)	80.8 (54, 4)	106.1 (308, 3)	116.9 (309, 3)	97.2 (309, 3)
330.0 /	17.8 (229, 4)	115.8 (262, 4)	124.6 (262, 4)	102.0 (12, 4)	93.3 (1, 5)
320.0 /	13.2 (229, 4)	114.4 (307, 5)	112.2 (276, 4)	100.0 (348, 6)	94.6 (364, 5)
310.0 /	13.3 (241, 4)	106.9 (241, 4)	102.5 (269, 4)	84.0 (332, 5)	83.5 (29, 3)
300.0 /	10.3 (163, 4)	118.5 (241, 4)	138.1 (198, 4)	114.4 (198, 4)	93.3 (268, 5)
290.0 /	10.6 (214, 4)	98.4 (197, 3)	116.4 (253, 4)	94.1 (253, 4)	97.9 (185, 3)
280.0 /	12.9 (154, 4)	106.6 (317, 4)	101.2 (323, 4)	110.5 (133, 2)	99.2 (230, 4)
270.0 /	14.7 (248, 5)	122.0 (257, 4)	112.0 (240, 4)	96.7 (240, 4)	96.0 (131, 3)
260.0 /	24.1 (248, 5)	105.9 (86, 5)	105.8 (257, 4)	86.1 (257, 4)	81.8 (164, 3)
250.0 /	22.9 (248, 5)	90.2 (86, 5)	97.7 (270, 3)	96.5 (270, 3)	86.2 (287, 5)
240.0 /	19.3 (158, 5)	92.2 (158, 5)	88.4 (283, 4)	85.5 (52, 4)	81.6 (286, 6)
230.0 /	33.7 (252, 5)	81.9 (163, 4)	87.3 (122, 5)	78.5 (342, 5)	73.1 (122, 5)
220.0 /	36.3 (313, 5)	86.3 (264, 4)	84.2 (122, 6)	75.8 (122, 6)	63.7 (16, 7)
210.0 /	43.7 (189, 5)	85.2 (189, 5)	93.6 (256, 5)	76.0 (256, 5)	59.2 (40, 6)
200.0 /	41.8 (189, 5)	70.2 (252, 5)	65.3 (264, 5)	55.8 (31, 4)	65.8 (31, 4)
190.0 /	61.6 (198, 6)	66.0 (326, 4)	87.8 (208, 5)	83.3 (208, 5)	69.8 (208, 5)
180.0 /	47.7 (198, 6)	62.4 (147, 4)	90.8 (326, 4)	86.3 (326, 4)	76.9 (351, 7)
170.0 /	44.0 (263, 4)	65.4 (198, 6)	81.1 (198, 6)	75.3 (23, 4)	64.1 (23, 4)
160.0 /	47.0 (249, 6)	89.3 (259, 6)	103.6 (26, 5)	91.5 (259, 6)	75.2 (259, 6)
150.0 /	54.1 (281, 4)	69.3 (360, 4)	73.2 (109, 6)	91.9 (6, 3)	81.5 (26, 5)
140.0 /	45.5 (146, 4)	61.2 (216, 4)	82.0 (65, 6)	99.7 (249, 6)	84.8 (322, 5)
130.0 /	58.8 (226, 6)	106.8 (226, 6)	97.7 (184, 4)	78.4 (358, 3)	90.9 (358, 3)
120.0 /	50.7 (245, 6)	129.0 (245, 6)	153.0 (245, 6)	120.6 (184, 4)	90.0 (184, 4)
110.0 /	53.7 (245, 6)	97.9 (245, 6)	82.9 (183, 3)	89.4 (183, 3)	86.8 (183, 3)
100.0 /	54.3 (222, 4)	126.2 (183, 5)	122.7 (214, 5)	102.9 (233, 6)	93.7 (233, 6)
90.0 /	78.6 (209, 6)	138.0 (124, 4)	131.4 (207, 4)	118.5 (67, 6)	106.2 (67, 6)
80.0 /	79.7 (209, 6)	132.9 (207, 4)	116.7 (180, 3)	106.2 (180, 3)	80.8 (220, 4)
70.0 /	77.8 (207, 6)	109.2 (220, 4)	114.9 (290, 4)	98.3 (290, 4)	78.7 (290, 4)
60.0 /	67.1 (109, 5)	103.5 (298, 5)	111.4 (210, 6)	92.3 (210, 6)	71.9 (210, 6)
50.0 /	59.4 (299, 5)	113.7 (261, 5)	103.9 (210, 6)	81.2 (210, 6)	70.0 (55, 4)
40.0 /	71.3 (298, 5)	103.1 (244, 4)	97.6 (269, 6)	68.2 (245, 5)	59.8 (125, 1)
30.0 /	60.6 (309, 5)	101.1 (245, 5)	84.5 (110, 5)	66.9 (151, 4)	72.7 (104, 3)
20.0 /	55.0 (210, 6)	72.0 (55, 5)	106.3 (355, 5)	105.9 (355, 5)	89.9 (355, 5)
10.0 /	11.1 (211, 4)	73.4 (315, 5)	88.6 (315, 5)	84.5 (21, 5)	79.6 (330, 7)

2ND HIGH
24-HR 1972
SGROUP# 1
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

* SECOND HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 53.4 AND OCCURRED AT (400.0, 90.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0
360.0 /	1.2 (235, 1)	15.7 (113, 1)	18.0 (171, 1)	18.4 (171, 1)	19.3 (357, 1)
350.0 /	1.1 (139, 1)	12.7 (113, 1)	18.5 (319, 1)	19.0 (90, 1)	16.6 (14, 1)
340.0 /	1.1 (240, 1)	11.3 (262, 1)	16.2 (309, 1)	16.3 (243, 1)	16.3 (22, 1)
330.0 /	2.2 (229, 1)	14.7 (229, 1)	26.7 (134, 1)	29.4 (134, 1)	28.5 (301, 1)
320.0 /	1.9 (196, 1)	18.4 (229, 1)	24.6 (134, 1)	24.2 (301, 1)	21.8 (61, 1)
310.0 /	1.7 (196, 1)	22.6 (196, 1)	24.3 (332, 1)	22.5 (332, 1)	19.3 (332, 1)
300.0 /	1.4 (317, 1)	19.8 (196, 1)	23.3 (347, 1)	21.7 (347, 1)	19.6 (120, 1)
290.0 /	1.7 (197, 1)	27.8 (133, 1)	33.9 (230, 1)	31.0 (133, 1)	26.9 (101, 1)
280.0 /	2.1 (230, 1)	27.6 (254, 1)	36.1 (133, 1)	35.1 (170, 1)	34.4 (121, 1)
270.0 /	2.0 (310, 1)	27.6 (265, 1)	29.7 (164, 1)	34.4 (164, 1)	32.9 (132, 1)
260.0 /	3.1 (248, 1)	26.7 (42, 1)	32.1 (265, 1)	29.0 (156, 1)	25.2 (277, 1)
250.0 /	3.1 (156, 1)	23.5 (117, 1)	27.8 (100, 1)	31.3 (100, 1)	29.1 (100, 1)
240.0 /	3.2 (156, 1)	17.6 (41, 1)	30.0 (70, 1)	30.2 (117, 1)	28.6 (294, 1)
230.0 /	7.6 (252, 1)	16.7 (189, 1)	26.3 (329, 1)	29.8 (329, 1)	28.5 (329, 1)
220.0 /	8.8 (35, 1)	16.3 (252, 1)	19.3 (122, 1)	22.1 (66, 1)	24.4 (66, 1)
210.0 /	9.1 (35, 1)	20.1 (252, 1)	16.2 (336, 1)	15.8 (92, 1)	15.9 (92, 1)
200.0 /	10.9 (263, 1)	17.8 (326, 1)	16.3 (336, 1)	15.4 (236, 1)	13.1 (16, 1)
190.0 /	11.5 (6, 1)	18.9 (328, 1)	24.5 (328, 1)	21.7 (328, 1)	18.4 (328, 1)
180.0 /	10.6 (51, 1)	20.4 (6, 1)	18.7 (320, 1)	24.3 (328, 1)	27.6 (328, 1)
170.0 /	12.1 (362, 1)	15.8 (6, 1)	22.1 (263, 1)	24.2 (326, 1)	24.8 (326, 1)
160.0 /	13.9 (360, 1)	16.5 (362, 1)	18.3 (6, 1)	19.1 (325, 1)	18.6 (325, 1)
150.0 /	10.9 (145, 1)	17.5 (360, 1)	17.9 (145, 1)	21.0 (6, 1)	22.9 (6, 1)
140.0 /	10.4 (146, 1)	14.2 (145, 1)	17.1 (280, 1)	17.2 (145, 1)	15.7 (281, 1)
130.0 /	12.4 (146, 1)	16.9 (245, 1)	18.5 (146, 1)	18.8 (44, 1)	18.3 (44, 1)
120.0 /	10.9 (143, 1)	22.2 (184, 1)	19.8 (184, 1)	17.5 (143, 1)	15.8 (143, 1)
110.0 /	13.3 (77, 1)	19.9 (143, 1)	22.3 (143, 1)	21.1 (143, 1)	21.0 (44, 1)
100.0 /	15.1 (222, 1)	26.5 (181, 1)	31.8 (181, 1)	29.0 (182, 1)	27.0 (183, 1)
90.0 /	17.2 (181, 1)	40.5 (242, 1)	44.7 (174, 1)	**53.4 (174, 1)**	53.4 (173, 1)
80.0 /	22.8 (182, 1)	41.0 (174, 1)	36.3 (173, 1)	32.8 (180, 1)	28.3 (180, 1)
70.0 /	29.3 (174, 1)	22.8 (194, 1)	24.2 (316, 1)	22.8 (316, 1)	19.9 (177, 1)
60.0 /	19.5 (180, 1)	20.8 (150, 1)	21.5 (261, 1)	18.9 (210, 1)	16.3 (177, 1)
50.0 /	13.3 (220, 1)	24.6 (150, 1)	22.7 (211, 1)	17.4 (261, 1)	14.2 (98, 1)
40.0 /	12.6 (150, 1)	20.1 (150, 1)	16.2 (300, 1)	14.4 (300, 1)	13.6 (172, 1)
30.0 /	12.2 (150, 1)	16.1 (111, 1)	16.1 (105, 1)	18.9 (89, 1)	21.3 (89, 1)
20.0 /	13.5 (261, 1)	15.9 (110, 1)	23.7 (89, 1)	24.7 (355, 1)	22.5 (55, 1)
10.0 /	1.5 (187, 1)	20.0 (105, 1)	19.9 (25, 1)	18.6 (65, 1)	19.2 (21, 1)

N-DAY
365 DAYS
SGROUP# 1
YEAR 1973
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30* & 75* ***

* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 4.2 AND OCCURRED AT (300.0, 90.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0	750.0	1000.0
360.0 /	0.1	2.0	2.4	2.4	2.1	1.6	1.2
350.0 /	0.1	2.1	2.5	2.3	2.0	1.4	1.1
340.0 /	0.1	2.2	2.7	2.5	2.2	1.6	1.2
330.0 /	0.1	2.5	3.2	3.1	2.7	1.9	1.4
320.0 /	0.1	2.8	3.7	3.5	3.1	2.3	1.8
310.0 /	0.1	2.6	3.7	3.6	3.2	2.4	1.9
300.0 /	0.1	2.6	3.9	3.8	3.5	2.7	2.2
290.0 /	0.1	2.4	3.5	3.4	3.1	2.4	1.9
280.0 /	0.1	2.6	3.7	3.7	3.3	2.5	2.0
270.0 /	0.1	2.7	3.7	3.8	3.6	2.9	2.4
260.0 /	0.1	2.9	3.9	3.7	3.3	2.5	2.1
250.0 /	0.1	2.8	3.9	3.9	3.6	2.8	2.4
240.0 /	0.1	2.3	3.1	3.2	3.0	2.5	2.1
230.0 /	0.5	2.1	2.5	2.5	2.3	1.8	1.5
220.0 /	0.6	1.9	2.4	2.4	2.2	1.7	1.4
210.0 /	0.6	1.6	2.1	2.2	2.1	1.7	1.4
200.0 /	0.7	1.4	1.7	1.7	1.6	1.3	1.1
190.0 /	0.7	1.3	1.4	1.4	1.3	1.1	0.9
180.0 /	0.7	1.3	1.4	1.4	1.2	1.0	0.8
170.0 /	0.8	1.2	1.4	1.3	1.3	1.0	0.8
160.0 /	1.0	1.3	1.3	1.3	1.2	1.0	0.8
150.0 /	1.0	1.5	1.6	1.6	1.5	1.2	1.0
140.0 /	1.0	1.4	1.7	1.7	1.7	1.4	1.1
130.0 /	1.0	1.4	1.7	1.7	1.7	1.4	1.2
120.0 /	1.1	1.6	1.8	1.9	1.7	1.4	1.2
110.0 /	1.3	2.1	2.4	2.3	2.1	1.6	1.2
100.0 /	1.6	3.0	3.4	3.2	2.8	2.0	1.4
90.0 /	2.0	3.9	4.2	3.8	3.3	2.3	1.6
80.0 /	2.4	4.0	3.8	3.2	2.6	1.6	1.1
70.0 /	2.6	3.5	3.3	2.8	2.4	1.6	1.2
60.0 /	2.3	3.2	3.0	2.6	2.1	1.3	1.0
50.0 /	2.0	2.7	2.5	2.0	1.6	1.1	0.8
40.0 /	1.8	2.3	2.1	1.8	1.6	1.1	0.8
30.0 /	1.6	2.0	2.1	1.9	1.7	1.1	0.8
20.0 /	1.2	1.9	2.1	2.0	1.8	1.3	1.0
10.0 /	0.1	1.9	2.3	2.2	2.0	1.5	1.1

2ND HIGH 1973
3-HR
SGROUP# 1
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 137.3 AND OCCURRED AT (200.0, 300.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0
360.0 /	12.8 (160, 4)	78.6 (201, 5)	78.7 (148, 5)	70.3 (148, 5)	64.4 (304, 7)
350.0 /	16.9 (163, 4)	81.6 (150, 4)	72.0 (40, 4)	68.9 (26, 8)	72.4 (40, 6)
340.0 /	20.3 (261, 4)	90.1 (217, 4)	87.7 (211, 6)	81.3 (115, 3)	72.7 (115, 3)
330.0 /	20.3 (217, 4)	115.6 (202, 5)	97.1 (217, 4)	102.5 (274, 4)	79.3 (328, 5)
320.0 /	17.2 (224, 5)	124.5 (127, 5)	120.8 (157, 4)	96.4 (67, 4)	94.5 (44, 6)
310.0 /	14.7 (233, 5)	111.7 (224, 4)	110.2 (160, 3)	98.5 (45, 3)	91.9 (74, 3)
300.0 /	16.6 (176, 5)	137.3 (176, 5)	102.7 (176, 5)	101.7 (204, 3)	96.3 (337, 4)
290.0 /	15.8 (232, 4)	101.1 (176, 5)	109.4 (249, 4)	113.2 (318, 4)	100.5 (243, 3)
280.0 /	28.6 (158, 4)	118.5 (232, 4)	128.6 (161, 3)	110.6 (161, 3)	98.3 (288, 5)
270.0 /	21.7 (158, 4)	86.9 (336, 5)	105.4 (20, 4)	104.5 (271, 4)	97.8 (271, 4)
260.0 /	19.2 (232, 4)	103.0 (240, 5)	108.5 (259, 6)	94.2 (109, 6)	82.7 (82, 3)
250.0 /	11.8 (260, 4)	98.4 (260, 4)	113.7 (240, 5)	93.8 (25, 4)	84.3 (265, 4)
240.0 /	10.9 (230, 4)	79.5 (221, 5)	83.4 (283, 4)	78.8 (279, 6)	80.4 (96, 7)
230.0 /	49.4 (42, 5)	89.2 (221, 5)	84.2 (125, 4)	70.8 (191, 4)	73.4 (290, 8)
220.0 /	49.1 (103, 4)	83.1 (176, 4)	89.1 (233, 4)	79.7 (191, 4)	73.2 (49, 3)
210.0 /	50.8 (298, 4)	90.7 (183, 4)	85.1 (305, 4)	84.7 (298, 5)	71.9 (221, 6)
200.0 /	52.5 (52, 4)	75.4 (131, 4)	69.0 (208, 5)	72.1 (299, 4)	66.8 (72, 1)
190.0 /	38.3 (131, 4)	74.1 (103, 4)	70.3 (103, 4)	67.9 (307, 6)	70.2 (298, 3)
180.0 /	45.0 (262, 4)	69.3 (131, 4)	70.9 (298, 4)	70.9 (298, 4)	63.5 (298, 4)
170.0 /	52.3 (47, 4)	60.2 (182, 4)	63.8 (188, 4)	78.4 (53, 4)	77.6 (5, 2)
160.0 /	51.9 (175, 5)	86.5 (262, 4)	72.6 (200, 4)	88.3 (254, 3)	72.6 (262, 4)
150.0 /	49.6 (175, 5)	68.1 (118, 4)	74.5 (262, 4)	70.7 (71, 8)	70.7 (51, 5)
140.0 /	46.8 (254, 6)	72.2 (175, 5)	83.6 (332, 8)	80.5 (38, 4)	76.5 (101, 6)
130.0 /	44.8 (231, 5)	79.7 (268, 6)	98.2 (268, 6)	103.5 (254, 6)	94.1 (6, 4)
120.0 /	45.8 (76, 2)	65.2 (124, 5)	77.7 (231, 5)	85.7 (8, 8)	97.9 (27, 3)
110.0 /	51.9 (138, 3)	91.8 (166, 3)	96.4 (174, 5)	86.8 (174, 5)	80.7 (169, 6)
100.0 /	61.1 (174, 5)	115.7 (208, 4)	90.9 (166, 3)	87.2 (326, 6)	74.8 (326, 5)
90.0 /	64.6 (208, 4)	118.2 (180, 5)	109.1 (236, 4)	95.9 (236, 4)	89.9 (134, 4)
80.0 /	70.5 (180, 5)	114.0 (181, 4)	109.6 (185, 4)	78.2 (185, 4)	64.0 (63, 6)
70.0 /	67.5 (218, 4)	124.5 (185, 4)	107.4 (181, 4)	87.6 (273, 6)	84.1 (252, 6)
60.0 /	67.6 (38, 5)	106.7 (192, 4)	87.4 (235, 5)	87.2 (208, 3)	80.8 (144, 6)
50.0 /	70.4 (185, 4)	109.9 (222, 4)	97.7 (313, 4)	84.2 (313, 4)	66.9 (313, 4)
40.0 /	66.8 (192, 4)	101.9 (182, 4)	94.1 (313, 4)	82.7 (194, 4)	71.8 (178, 6)
30.0 /	55.7 (192, 4)	96.7 (151, 5)	78.9 (325, 6)	86.4 (178, 6)	71.6 (68, 6)
20.0 /	52.0 (132, 4)	85.5 (210, 6)	104.6 (269, 5)	88.0 (148, 7)	81.5 (159, 6)
10.0 /	16.4 (163, 4)	72.1 (71, 5)	83.0 (71, 5)	74.4 (150, 4)	64.0 (7, 6)

2ND HIGH 1973
24-HR
SGROUP# 1
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

* SECOND HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 37.8 AND OCCURRED AT (300.0, 250.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0
360.0 /	2.8 (160, 1)	22.6 (148, 1)	25.7 (148, 1)	21.3 (349, 1)	19.2 (45, 1)
350.0 /	2.6 (228, 1)	17.7 (146, 1)	19.4 (194, 1)	22.8 (93, 1)	23.6 (93, 1)
340.0 /	2.6 (200, 1)	22.4 (201, 1)	25.3 (201, 1)	21.1 (201, 1)	19.0 (213, 1)
330.0 /	3.7 (202, 1)	29.1 (217, 1)	25.7 (202, 1)	21.1 (217, 1)	18.8 (328, 1)
320.0 /	3.4 (224, 1)	25.3 (127, 1)	27.8 (127, 1)	27.9 (88, 1)	29.8 (88, 1)
310.0 /	1.8 (233, 1)	22.5 (127, 1)	26.9 (171, 1)	29.1 (359, 1)	28.7 (359, 1)
300.0 /	2.1 (176, 1)	23.7 (202, 1)	27.8 (244, 1)	32.6 (359, 1)	31.6 (32, 1)
290.0 /	2.1 (158, 1)	24.7 (122, 1)	27.9 (358, 1)	28.5 (109, 1)	27.8 (109, 1)
280.0 /	3.8 (232, 1)	24.5 (287, 1)	31.6 (105, 1)	31.9 (155, 1)	28.4 (60, 1)
270.0 /	3.3 (260, 1)	25.7 (82, 1)	30.2 (154, 1)	26.2 (286, 1)	24.4 (286, 1)
260.0 /	2.5 (232, 1)	26.8 (260, 1)	29.8 (240, 1)	26.7 (49, 1)	27.2 (49, 1)
250.0 /	2.1 (240, 1)	20.8 (276, 1)	37.8 (321, 1)	34.5 (240, 1)	26.9 (240, 1)
240.0 /	1.7 (260, 1)	20.4 (291, 1)	23.9 (240, 1)	24.1 (240, 1)	24.2 (291, 1)
230.0 /	10.1 (221, 1)	22.3 (233, 1)	25.4 (9, 1)	24.6 (292, 1)	20.7 (292, 1)
220.0 /	10.6 (233, 1)	24.6 (341, 1)	25.6 (340, 1)	29.2 (9, 1)	25.0 (292, 1)
210.0 /	9.6 (221, 1)	22.0 (305, 1)	29.0 (305, 1)	26.9 (341, 1)	27.1 (340, 1)
200.0 /	9.6 (190, 1)	19.7 (305, 1)	22.3 (341, 1)	22.9 (305, 1)	28.6 (24, 1)
190.0 /	10.2 (95, 1)	17.5 (305, 1)	18.4 (42, 1)	17.7 (136, 1)	18.6 (11, 1)
180.0 /	8.4 (182, 1)	18.3 (12, 1)	18.1 (12, 1)	16.0 (342, 1)	15.0 (298, 1)
170.0 /	10.1 (58, 1)	14.3 (182, 1)	18.6 (12, 1)	23.1 (12, 1)	23.8 (12, 1)
160.0 /	12.9 (350, 1)	14.5 (77, 1)	13.7 (77, 1)	13.4 (95, 1)	13.5 (5, 1)
150.0 /	14.7 (175, 1)	16.4 (351, 1)	17.6 (350, 1)	18.6 (350, 1)	18.2 (350, 1)
140.0 /	14.9 (41, 1)	21.2 (29, 1)	24.7 (351, 1)	26.8 (351, 1)	24.9 (175, 1)
130.0 /	17.4 (355, 1)	19.2 (355, 1)	22.6 (41, 1)	24.4 (41, 1)	23.5 (41, 1)
120.0 /	11.4 (355, 1)	18.4 (174, 1)	23.5 (76, 1)	25.7 (76, 1)	25.1 (76, 1)
110.0 /	14.8 (80, 1)	21.6 (76, 1)	25.3 (85, 1)	27.8 (85, 1)	26.2 (169, 1)
100.0 /	17.1 (169, 1)	28.4 (166, 1)	30.2 (169, 1)	28.7 (169, 1)	26.9 (169, 1)
90.0 /	16.8 (85, 1)	32.2 (187, 1)	33.4 (187, 1)	28.8 (187, 1)	26.4 (180, 1)
80.0 /	19.2 (187, 1)	33.6 (185, 1)	30.8 (187, 1)	24.5 (187, 1)	19.3 (187, 1)
70.0 /	21.3 (187, 1)	27.8 (185, 1)	23.5 (140, 1)	23.9 (140, 1)	21.7 (140, 1)
60.0 /	16.8 (185, 1)	25.9 (252, 1)	30.0 (144, 1)	27.4 (209, 1)	22.4 (209, 1)
50.0 /	15.1 (252, 1)	25.2 (256, 1)	20.1 (309, 1)	16.6 (309, 1)	12.8 (172, 1)
40.0 /	14.7 (252, 1)	20.1 (182, 1)	15.3 (256, 1)	14.6 (194, 1)	14.8 (145, 1)
30.0 /	14.6 (186, 1)	15.3 (269, 1)	15.5 (151, 1)	17.4 (178, 1)	15.9 (128, 1)
20.0 /	10.6 (192, 1)	15.0 (159, 1)	17.6 (214, 1)	19.0 (146, 1)	20.1 (146, 1)
10.0 /	2.3 (160, 1)	18.7 (214, 1)	29.8 (148, 1)	30.1 (148, 1)	26.5 (148, 1)

'N'-DAY
365 DAYS
SGROUP# 1
YEAR 1974
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 5.3 AND OCCURRED AT (300.0, 90.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0	750.0	1000.0
360.0 /	0.1	2.1	2.4	2.2	1.9	1.4	1.1
350.0 /	0.1	2.0	2.2	2.0	1.8	1.3	1.0
340.0 /	0.1	2.0	2.5	2.4	2.2	1.7	1.4
330.0 /	0.1	2.5	3.3	3.1	2.8	2.0	1.6
320.0 /	0.2	3.0	3.6	3.3	2.9	2.1	1.6
310.0 /	0.1	2.9	3.5	3.2	2.8	2.0	1.6
300.0 /	0.1	2.4	3.0	2.8	2.5	2.0	1.7
290.0 /	0.1	2.5	3.1	2.9	2.6	2.0	1.6
280.0 /	0.1	3.0	4.0	3.8	3.4	2.7	2.2
270.0 /	0.1	2.8	3.5	3.5	3.2	2.7	2.3
260.0 /	0.1	3.0	3.5	3.2	2.7	2.1	1.8
250.0 /	0.1	2.8	3.7	3.6	3.3	2.7	2.4
240.0 /	0.1	2.8	3.3	3.2	3.0	2.4	2.1
230.0 /	0.5	2.5	3.1	2.9	2.6	2.0	1.6
220.0 /	0.5	2.2	2.8	2.9	2.7	2.1	1.7
210.0 /	0.6	1.8	2.4	2.5	2.4	1.9	1.6
200.0 /	0.7	1.5	1.7	1.8	1.7	1.3	1.1
190.0 /	0.7	1.4	1.5	1.4	1.3	1.0	0.7
180.0 /	0.8	1.3	1.5	1.5	1.5	1.2	1.1
170.0 /	0.9	1.4	1.4	1.4	1.3	1.1	0.9
160.0 /	0.9	1.4	1.6	1.6	1.5	1.2	1.0
150.0 /	0.9	1.4	1.5	1.6	1.5	1.2	1.0
140.0 /	0.8	1.3	1.5	1.6	1.6	1.3	1.1
130.0 /	0.8	1.2	1.3	1.3	1.3	1.0	0.9
120.0 /	0.9	1.5	1.7	1.6	1.5	1.1	0.9
110.0 /	1.2	2.2	2.5	2.4	2.1	1.5	1.1
100.0 /	1.7	3.5	3.9	3.7	3.2	2.2	1.6
90.0 /	2.3	4.8	5.3	4.8	4.1	2.8	2.0
80.0 /	2.9	4.9	4.6	3.8	3.1	1.9	1.3
70.0 /	3.2	4.1	3.7	3.0	2.5	1.6	1.1
60.0 /	2.8	3.5	3.2	2.7	2.2	1.4	1.0
50.0 /	2.3	3.0	2.8	2.3	1.8	1.2	0.8
40.0 /	2.0	2.6	2.3	2.0	1.7	1.1	0.8
30.0 /	1.7	2.1	2.1	1.9	1.6	1.1	0.8
20.0 /	1.4	2.0	2.2	2.1	1.9	1.4	1.0
10.0 /	0.1	2.0	2.4	2.2	2.0	1.4	1.1

2ND HIGH
3-HR 1974
SGROUP# 1
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 145.3 AND OCCURRED AT (200.0, 310.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0
360.0 /	19.8 (133, 5)	82.2 (164, 4)	81.8 (310, 4)	72.8 (249, 5)	74.0 (251, 5)
350.0 /	20.9 (133, 5)	96.5 (236, 5)	101.0 (242, 4)	78.5 (242, 4)	74.7 (250, 6)
340.0 /	19.2 (199, 4)	108.4 (199, 4)	93.5 (199, 4)	86.9 (38, 3)	89.8 (84, 2)
330.0 /	22.0 (159, 5)	130.7 (159, 4)	118.1 (62, 4)	93.0 (159, 4)	77.6 (62, 4)
320.0 /	22.0 (187, 4)	123.5 (187, 4)	132.3 (65, 4)	111.5 (65, 4)	100.7 (93, 3)
310.0 /	25.8 (243, 4)	145.3 (237, 4)	113.3 (237, 4)	89.8 (219, 3)	77.1 (37, 4)
300.0 /	25.9 (221, 4)	122.1 (238, 4)	100.2 (237, 4)	96.2 (37, 3)	86.8 (74, 6)
290.0 /	31.4 (221, 4)	139.9 (221, 4)	108.2 (240, 4)	92.4 (321, 6)	85.6 (217, 6)
280.0 /	24.1 (172, 4)	91.1 (204, 4)	110.9 (232, 6)	106.0 (195, 3)	85.2 (97, 3)
270.0 /	23.8 (227, 4)	112.0 (305, 4)	105.8 (110, 4)	101.2 (233, 3)	94.6 (333, 7)
260.0 /	23.0 (204, 4)	117.1 (110, 5)	104.7 (110, 5)	84.8 (305, 4)	82.8 (356, 3)
250.0 /	21.8 (286, 5)	113.5 (110, 5)	114.3 (253, 4)	105.5 (287, 6)	91.4 (253, 4)
240.0 /	22.7 (233, 4)	109.2 (286, 5)	96.4 (284, 4)	88.9 (284, 4)	86.6 (179, 3)
230.0 /	33.3 (114, 4)	107.3 (265, 4)	103.5 (339, 4)	77.5 (172, 4)	69.7 (58, 4)
220.0 /	42.1 (364, 5)	114.2 (172, 4)	106.1 (172, 4)	79.5 (265, 4)	85.6 (59, 3)
210.0 /	47.5 (281, 5)	86.0 (264, 5)	93.9 (264, 5)	76.0 (263, 5)	68.1 (211, 3)
200.0 /	47.5 (338, 4)	61.4 (282, 4)	72.9 (282, 5)	71.6 (198, 4)	72.6 (311, 3)
190.0 /	36.3 (55, 5)	57.3 (311, 5)	69.9 (364, 5)	65.0 (291, 4)	62.6 (55, 3)
180.0 /	38.1 (292, 5)	69.3 (106, 7)	77.3 (281, 5)	66.8 (182, 5)	62.9 (182, 5)
170.0 /	37.9 (109, 6)	63.3 (133, 6)	70.4 (338, 4)	77.6 (106, 7)	82.8 (106, 7)
160.0 /	39.3 (225, 6)	57.8 (338, 5)	66.9 (109, 6)	75.2 (292, 5)	73.6 (316, 3)
150.0 /	40.9 (164, 6)	70.0 (197, 4)	73.9 (197, 4)	72.6 (96, 6)	73.9 (96, 6)
140.0 /	46.8 (76, 5)	70.7 (226, 6)	73.8 (226, 6)	88.7 (225, 6)	76.6 (56, 6)
130.0 /	47.8 (120, 6)	71.9 (222, 6)	76.3 (222, 6)	69.7 (167, 3)	61.5 (39, 7)
120.0 /	54.6 (196, 6)	93.7 (167, 3)	96.6 (167, 3)	81.8 (196, 6)	86.1 (351, 3)
110.0 /	60.9 (228, 6)	105.2 (228, 6)	97.5 (228, 6)	94.4 (193, 2)	91.1 (193, 2)
100.0 /	63.4 (173, 6)	126.7 (211, 5)	117.6 (197, 6)	96.9 (197, 6)	86.9 (173, 6)
90.0 /	65.1 (197, 6)	109.0 (173, 4)	117.4 (176, 5)	93.8 (176, 5)	81.9 (64, 6)
80.0 /	66.3 (163, 5)	109.6 (156, 4)	101.5 (315, 5)	87.8 (260, 5)	90.5 (147, 7)
70.0 /	72.5 (64, 5)	106.9 (205, 5)	96.8 (16, 5)	96.9 (16, 5)	83.8 (16, 5)
60.0 /	72.0 (315, 5)	101.6 (129, 4)	94.8 (86, 5)	81.8 (158, 4)	75.2 (9, 5)
50.0 /	61.3 (145, 4)	87.6 (158, 4)	94.0 (247, 4)	80.2 (247, 4)	69.9 (157, 4)
40.0 /	54.3 (158, 4)	101.8 (158, 5)	81.8 (158, 5)	91.1 (218, 6)	75.3 (90, 5)
30.0 /	54.9 (129, 4)	83.6 (158, 5)	76.6 (90, 5)	70.2 (186, 5)	66.7 (346, 6)
20.0 /	53.2 (204, 5)	71.6 (207, 5)	79.7 (21, 4)	73.6 (31, 4)	82.8 (21, 4)
10.0 /	21.5 (161, 4)	72.9 (127, 4)	72.0 (208, 4)	70.7 (196, 3)	74.5 (52, 6)

2ND HIGH
24-HR 1974
SGROUP# 1
*** FIVE YEARS FOR SWEEP & HEATER SO2 -- 30° & 75° ***

* SECOND HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 37.6 AND OCCURRED AT (300.0, 90.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	200.0	300.0	400.0	500.0
360.0 /	2.6 (237, 1)	16.5 (242, 1)	21.8 (84, 1)	22.7 (341, 1)	23.7 (175, 1)
350.0 /	3.1 (237, 1)	18.4 (84, 1)	23.3 (341, 1)	20.9 (212, 1)	18.1 (212, 1)
340.0 /	3.3 (221, 1)	22.6 (242, 1)	19.6 (212, 1)	20.3 (131, 1)	19.2 (131, 1)
330.0 /	3.8 (159, 1)	20.7 (242, 1)	21.1 (184, 1)	20.5 (50, 1)	17.8 (159, 1)
320.0 /	3.4 (221, 1)	21.3 (226, 1)	22.0 (9, 1)	23.1 (142, 1)	21.5 (142, 1)
310.0 /	3.3 (243, 1)	31.6 (219, 1)	34.7 (219, 1)	29.9 (219, 1)	25.1 (134, 1)
300.0 /	3.2 (221, 1)	22.2 (216, 1)	22.8 (240, 1)	21.0 (301, 1)	17.6 (301, 1)
290.0 /	3.9 (221, 1)	20.8 (67, 1)	26.5 (67, 1)	23.2 (74, 1)	22.7 (357, 1)
280.0 /	3.3 (227, 1)	26.7 (110, 1)	32.4 (101, 1)	34.7 (101, 1)	31.7 (101, 1)
270.0 /	4.1 (180, 1)	27.2 (171, 1)	28.8 (171, 1)	30.2 (233, 1)	27.1 (233, 1)
260.0 /	2.9 (110, 1)	28.3 (286, 1)	28.1 (110, 1)	23.3 (356, 1)	21.4 (348, 1)
250.0 /	2.8 (286, 1)	22.3 (305, 1)	30.7 (284, 1)	27.8 (286, 1)	27.0 (73, 1)
240.0 /	3.0 (286, 1)	28.8 (312, 1)	34.8 (284, 1)	35.2 (284, 1)	30.2 (286, 1)
230.0 /	6.2 (281, 1)	20.7 (313, 1)	27.8 (266, 1)	28.6 (266, 1)	26.6 (266, 1)
220.0 /	9.5 (332, 1)	19.9 (265, 1)	21.1 (279, 1)	27.1 (266, 1)	29.0 (266, 1)
210.0 /	9.5 (332, 1)	21.6 (281, 1)	21.2 (279, 1)	23.3 (330, 1)	24.8 (107, 1)
200.0 /	7.6 (57, 1)	16.3 (281, 1)	21.8 (57, 1)	23.3 (311, 1)	21.3 (311, 1)
190.0 /	8.4 (55, 1)	17.4 (332, 1)	21.0 (332, 1)	17.9 (332, 1)	16.9 (55, 1)
180.0 /	10.3 (291, 1)	15.8 (350, 1)	21.1 (280, 1)	24.1 (350, 1)	22.6 (347, 1)
170.0 /	13.2 (40, 1)	14.0 (338, 1)	15.0 (55, 1)	19.5 (280, 1)	19.9 (280, 1)
160.0 /	12.1 (96, 1)	17.4 (96, 1)	18.0 (316, 1)	18.6 (40, 1)	17.9 (40, 1)
150.0 /	12.7 (56, 1)	13.5 (56, 1)	18.7 (96, 1)	20.4 (96, 1)	19.6 (96, 1)
140.0 /	13.1 (39, 1)	15.7 (336, 1)	19.3 (336, 1)	21.9 (336, 1)	22.1 (336, 1)
130.0 /	12.4 (167, 1)	16.0 (335, 1)	18.3 (337, 1)	18.9 (335, 1)	17.8 (335, 1)
120.0 /	16.7 (167, 1)	18.7 (335, 1)	21.2 (335, 1)	22.4 (335, 1)	21.2 (351, 1)
110.0 /	11.3 (200, 1)	18.8 (200, 1)	23.8 (193, 1)	20.9 (167, 1)	17.4 (213, 1)
100.0 /	14.2 (193, 1)	26.7 (192, 1)	29.3 (173, 1)	23.4 (211, 1)	20.2 (145, 1)
90.0 /	18.9 (192, 1)	32.3 (231, 1)	37.6 (192, 1)	36.8 (230, 1)	32.8 (230, 1)
80.0 /	19.9 (173, 1)	28.1 (145, 1)	26.7 (173, 1)	22.2 (145, 1)	17.6 (71, 1)
70.0 /	21.5 (230, 1)	23.1 (190, 1)	21.7 (190, 1)	20.5 (173, 1)	16.2 (173, 1)
60.0 /	15.8 (315, 1)	20.4 (129, 1)	19.1 (209, 1)	19.6 (270, 1)	20.7 (270, 1)
50.0 /	12.8 (190, 1)	19.6 (88, 1)	18.2 (88, 1)	17.5 (88, 1)	15.9 (88, 1)
40.0 /	12.7 (146, 1)	17.7 (229, 1)	16.0 (229, 1)	16.5 (218, 1)	16.2 (218, 1)
30.0 /	12.1 (129, 1)	16.2 (166, 1)	15.6 (186, 1)	13.7 (174, 1)	14.8 (174, 1)
20.0 /	9.4 (129, 1)	14.7 (80, 1)	14.9 (80, 1)	18.5 (38, 1)	20.0 (83, 1)
10.0 /	2.7 (161, 1)	14.1 (83, 1)	19.2 (38, 1)	21.6 (84, 1)	20.3 (98, 1)

*** SO2 INTERACTIONS AT -- [redacted] ***

SOURCE # 1---GANNON 1 & 2
SOURCE # 2---GANNON 3
SOURCE # 3---GANNON 4
SOURCE # 4---GANNON 5
SOURCE # 5---GANNON 6
SOURCE # 6---HOOKERS POINT 1&2
SOURCE # 7---HOOKERS POINT 3&4
SOURCE # 8---HOOKERS POINT 5
SOURCE # 9---HOOKERS POINT 6
SOURCE # 10---GARDINIER 8-04
SOURCE # 11---GARDINIER 8-05
SOURCE # 12---GARDINIER 8-06
SOURCE # 13---GARDINIER 8-07
SOURCE # 14---GARDINIER 8-32
SOURCE # 15---GARDINIER 8-38
SOURCE # 16---GARDINIER 8-42
SOURCE # 17---IMC PHOS 24-01
SOURCE # 18---NITRAM 29-03
SOURCE # 19---NITRAM 29-04
SOURCE # 20---EXXON 22-01
SOURCE # 21---CHLORIDE METAL 50-04
SOURCE # 22---SULPHUR T 82-01
SOURCE # 23---SULPHUR T 82-02
SOURCE # 24---CHLORIDE METAL 50-01
SOURCE # 25---GEN PORTLAND 18-04
SOURCE # 26---GEN PORTLAND 18-05
SOURCE # 27---GULF COAST LEAD 57-01
SOURCE # 28---MUNICIPAL INCINERATOR
SOURCE # 29---GULF COAST LEAD 57-02
SOURCE # 30---OIL HEATER
SOURCE # 31---SWEEP DRYER

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (G/S) TYPE=2 (G/S) *PER M**2	X (M)	Y (M)	BASE ELEV. (M)	HEIGHT (M)	TEMP. TYPE=0 (DEG.K) VERT.DIM. TYPE=1 (M)	EXIT VEL. TYPE=0 (M/S) HORZ.DIM. TYPE=1,2 (M)	DIAM. TYPE=0 (M)	BLDG. HEIGHT TYPE=0 (M)	BLDG. LENGTH TYPE=0 (M)	BLDG. WIDTH TYPE=0 (M)
1	0	0	0	760.2000	-1400.0	600.0	0.0	93.30	438.0	32.30	3.05	0.00	0.00	0.00
2	0	0	0	483.5000	-1400.0	600.0	0.0	93.30	427.0	35.40	3.23	0.00	0.00	0.00
3	0	0	0	566.7999	-1400.0	600.0	0.0	93.30	443.0	24.60	2.93	0.00	0.00	0.00
4	0	0	0	690.7000	-1400.0	600.0	0.0	93.30	416.0	20.70	4.45	0.00	0.00	0.00
5	0	0	0	1148.5000	-1400.0	600.0	0.0	93.30	439.0	23.40	5.36	0.00	0.00	0.00
6	0	0	0	111.1000	-3400.0	4100.0	0.0	85.30	403.0	18.20	3.40	0.00	0.00	0.00

*** SO2 INTERACTIONS AT -- ***

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (G/S) TYPE=2 (G/S) *PER M**2	X (M)	Y (M)	BASE ELEV. (M)	HEIGHT (M)	TEMP. TYPE=0 (DEG.K) VERT.DIM. TYPE=1 (M)	EXIT VEL. TYPE=0 (M/S) HORZ.DIM. TYPE=1,2 (M)	BLDG. DIAM. TYPE=0 (M)	BLDG. HEIGHT TYPE=0 (M)	BLDG. LENGTH TYPE=0 (M)	BLDG. WIDTH TYPE=0 (M)
7	0	0	0	113.6000	-3400.0	4100.0	0.0	81.70	397.0	11.50	3.60	0.00	0.00	0.00
8	0	0	0	55.6000	-3400.0	4100.0	0.0	85.30	403.0	18.20	3.40	0.00	0.00	0.00
9	0	0	0	107.5000	-3400.0	4100.0	0.0	85.30	436.0	17.90	2.90	0.00	0.00	0.00
10	0	0	0	15.3000	1500.0	-4400.0	0.0	45.70	347.0	9.10	2.30	0.00	0.00	0.00
11	0	0	0	32.6000	1500.0	-4400.0	0.0	45.70	345.0	8.20	2.40	0.00	0.00	0.00
12	0	0	0	34.7000	1500.0	-4400.0	0.0	45.70	346.0	12.40	2.70	0.00	0.00	0.00
13	0	0	0	6.5000	1500.0	-4400.0	0.0	38.40	327.0	10.80	2.40	0.00	0.00	0.00
14	0	0	0	1.7000	1500.0	-4400.0	0.0	23.80	350.0	5.50	1.80	0.00	0.00	0.00
15	0	0	0	0.8000	1500.0	-4400.0	0.0	20.70	310.0	15.30	1.20	0.00	0.00	0.00
16	0	0	0	4.5000	1500.0	-4400.0	0.0	18.30	312.0	3.70	0.60	0.00	0.00	0.00
17	0	0	0	3.6000	-1300.0	600.0	0.0	13.10	439.0	9.70	0.30	0.00	0.00	0.00
18	0	0	0	0.5000	1700.0	2100.0	0.0	27.40	308.0	1.90	1.40	0.00	0.00	0.00
19	0	0	0	2.6000	1700.0	2100.0	0.0	27.40	505.0	10.80	1.40	0.00	0.00	0.00
20	0	0	0	0.8000	800.0	300.0	0.0	9.40	340.0	11.00	3.00	0.00	0.00	0.00
21	0	0	0	7.2000	400.0	1400.0	0.0	29.90	345.0	12.10	0.60	0.00	0.00	0.00
22	0	0	0	0.8000	-1400.0	2300.0	0.0	9.10	561.0	5.90	0.60	0.00	0.00	0.00
23	0	0	0	0.8000	-1400.0	2300.0	0.0	9.10	622.0	6.20	0.60	0.00	0.00	0.00
24	0	0	0	13.0100	400.0	1400.0	0.0	30.00	398.0	22.90	0.60	0.00	0.00	0.00
25	0	0	0	2.7400	-3100.0	3800.0	0.0	36.00	454.0	0.80	2.74	0.00	0.00	0.00
26	0	0	0	2.7400	-3100.0	3800.0	0.0	36.00	454.0	0.40	2.74	0.00	0.00	0.00
27	0	0	0	2.6000	2500.0	6900.0	0.0	29.60	344.0	2.70	0.61	0.00	0.00	0.00
28	0	0	0	7.6000	-1200.0	5300.0	0.0	27.40	589.0	0.70	0.61	0.00	0.00	0.00
29	0	0	0	42.3000	2500.0	6900.0	0.0	29.60	344.0	36.00	0.61	0.00	0.00	0.00
30	0	0	0	0.6200	-52.0	35.0	0.0	9.14	561.0	8.60	0.36	0.00	0.00	0.00
31	0	0	0	3.5600	0.0	0.0	0.0	22.90	366.0	26.70	0.35	0.00	0.00	0.00

MET. DATA
DAY 208
*** SO2 INTERACTIONS AT -- 208/4/1973 ***

* METEOROLOGICAL DATA FOR DAY 208 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	330.0	330.0	1.00	1341.0	299.0	6	6
2	330.0	330.0	1.50	1355.0	299.0	6	6
3	350.0	346.0	2.60	1369.0	299.0	6	6
4	340.0	337.0	2.60	1383.0	299.0	6	6
5	320.0	320.0	2.10	1397.0	299.0	6	6
6	320.0	317.0	2.60	20.0	299.0	5	5
7	360.0	5.0	2.60	208.0	300.0	4	4
8	60.0	61.0	1.50	396.0	302.0	3	3
9	80.0	76.0	3.10	584.0	303.0	2	2
10	90.0	94.0	3.60	771.0	304.0	2	2
11	110.0	109.0	4.10	959.0	304.0	2	2
12	110.0	111.0	3.60	1147.0	304.0	2	2
13	190.0	195.0	1.50	1334.0	304.0	2	2
14	60.0	64.0	5.10	1522.0	305.0	3	3
15	100.0	100.0	6.20	1522.0	305.0	4	4
16	90.0	91.0	4.60	1522.0	305.0	3	3
17	150.0	149.0	3.60	1522.0	304.0	4	4
18	320.0	323.0	5.70	1522.0	302.0	4	4
19	300.0	299.0	2.60	1522.0	300.0	4	4
20	300.0	304.0	2.60	1525.0	300.0	5	5
21	330.0	326.0	2.60	1530.0	299.0	5	5
22	350.0	348.0	3.10	1535.0	299.0	5	5
23	360.0	4.0	1.50	1540.0	299.0	6	6
24	350.0	347.0	3.10	1545.0	300.0	5	5

DAILY: 208
3-HR/PD 4
SGROUP# 1
YEAR 1973

Gannon → Comco

Gannon worst day

*** SO2 INTERACTIONS AT -- 208/4/1973 ***

* DAILY 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 12 FOR DAY 208 *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 896.9 AND OCCURRED AT (300.0, 113.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
113.0 /	831.5	896.9	852.7	806.3	728.9	623.5	507.4	415.2	332.9

DAY 228

*** SO2 INTERACTIONS -- 228/6/1974 ***

* METEOROLOGICAL DATA FOR DAY 228 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	330.0	326.0	2.60	1511.0	299.0	5	5
2	290.0	289.0	3.10	1497.0	299.0	5	5
3	340.0	342.0	2.60	1484.0	299.0	6	6
4	300.0	302.0	2.10	1470.0	298.0	6	6
5	280.0	279.0	2.10	1457.0	298.0	6	6
6	290.0	286.0	2.60	1443.0	298.0	6	6
7	320.0	319.0	2.60	157.0	298.0	5	5
8	310.0	308.0	4.10	325.0	299.0	4	4
9	330.0	330.0	2.60	494.0	300.0	3	3
10	290.0	295.0	2.60	662.0	301.0	2	2
11	10.0	12.0	3.10	831.0	304.0	2	2
12	50.0	52.0	4.10	999.0	304.0	2	2
13	70.0	75.0	5.10	1168.0	302.0	3	3
14	70.0	66.0	3.60	1336.0	301.0	2	2
15	50.0	54.0	2.60	1336.0	301.0	3	3
16	110.0	115.0	3.10	1336.0	303.0	2	2
17	110.0	113.0	3.60	1336.0	303.0	3	3
18	100.0	97.0	4.60	1336.0	303.0	4	4
19	90.0	95.0	3.10	1336.0	303.0	4	4
20	130.0	132.0	2.60	1332.0	301.0	5	5
21	130.0	129.0	1.00	1329.0	300.0	6	6
22	280.0	282.0	3.10	1325.0	300.0	5	5
23	320.0	324.0	3.10	1321.0	300.0	5	5
24	300.0	297.0	2.60	1317.0	300.0	5	5

MET. DATA
DAY 208
*** SO2 INTERACTIONS -- 208/1973 ***

* METEOROLOGICAL DATA FOR DAY 208 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	330.0	330.0	1.00	1341.0	299.0	6	6
2	330.0	330.0	1.50	1355.0	299.0	6	6
3	350.0	346.0	2.60	1369.0	299.0	6	6
4	340.0	337.0	2.60	1383.0	299.0	6	6
5	320.0	320.0	2.10	1397.0	299.0	6	6
6	320.0	317.0	2.60	20.0	299.0	5	5
7	360.0	5.0	2.60	208.0	300.0	4	4
8	60.0	61.0	1.50	396.0	302.0	3	3
9	80.0	76.0	3.10	584.0	303.0	2	2
10	90.0	94.0	3.60	771.0	304.0	2	2
11	110.0	109.0	4.10	959.0	304.0	2	2
12	110.0	111.0	3.60	1147.0	304.0	2	2
13	190.0	195.0	1.50	1334.0	304.0	2	2
14	60.0	64.0	5.10	1522.0	305.0	3	3
15	100.0	100.0	6.20	1522.0	305.0	4	4
16	90.0	91.0	4.60	1522.0	305.0	3	3
17	150.0	149.0	3.60	1522.0	304.0	4	4
18	320.0	323.0	5.70	1522.0	302.0	4	4
19	300.0	299.0	2.60	1522.0	300.0	4	4
20	300.0	304.0	2.60	1525.0	300.0	5	5
21	330.0	326.0	2.60	1530.0	299.0	5	5
22	350.0	348.0	3.10	1535.0	299.0	5	5
23	360.0	4.0	1.50	1540.0	299.0	6	6
24	350.0	347.0	3.10	1545.0	300.0	5	5

DAILY: 208
24-HR/PD.1
SGROUP# 1
YEAR 1973
*** SO2 INTERACTIONS -- 208/1973

Gannon → Comco

Gannon Worst Dy***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 208 *

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 124.9 AND OCCURRED AT (500.0, 113.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
113.0 /	110.2	122.9	124.9	116.3	95.1	80.0	85.3	54.4	42.0

3-HR/PD 6
SGROUP# 1
YEAR 1974
*** SO2 INTERACTIONS -- 228/6/1974 ***

Gannon → comco
comco wastday

* DAILY 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 18 FOR DAY 228 *

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 654.3 AND OCCURRED AT (1400.0, 113.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
113.0 /	453.2	587.4	610.7	632.3	653.6	654.3	623.5	576.0	513.4

MET. DATA
DAY 169
*** SO2 INTERACTIONS -- 169/1973 ***

* METEOROLOGICAL DATA FOR DAY 169 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	100.0	100.0	4.60	1794.0	301.0	4	4
2	100.0	102.0	4.60	1771.0	301.0	5	5
3	70.0	74.0	3.60	1747.0	301.0	5	5
4	100.0	105.0	3.60	1723.0	301.0	5	5
5	110.0	111.0	3.60	1699.0	301.0	4	4
6	140.0	145.0	2.60	1676.0	300.0	4	4
7	150.0	146.0	4.10	1652.0	299.0	4	4
8	110.0	111.0	3.10	1628.0	299.0	3	3
9	100.0	104.0	3.60	1605.0	303.0	2	2
10	200.0	202.0	5.10	1581.0	303.0	3	3
11	110.0	111.0	4.60	1557.0	303.0	2	2
12	140.0	138.0	5.10	1533.0	305.0	3	3
13	140.0	143.0	6.20	1510.0	305.0	3	3
14	90.0	92.0	5.10	1486.0	304.0	3	3
15	70.0	72.0	5.70	1486.0	303.0	3	3
16	100.0	100.0	5.10	1486.0	303.0	3	3
17	110.0	106.0	4.10	1486.0	303.0	4	4
18	110.0	111.0	4.10	1486.0	303.0	4	4
19	70.0	71.0	4.10	1486.0	302.0	4	4
20	100.0	100.0	3.10	1473.0	301.0	5	5
21	100.0	98.0	3.60	1451.0	301.0	4	4
22	70.0	70.0	3.10	1429.0	301.0	5	5
23	100.0	97.0	3.10	1407.0	301.0	5	5
24	160.0	160.0	3.10	1385.0	299.0	6	6

DAILY: 169
24-HR/PD 1
SGROUP# 1
YEAR 1973

Gannon → Comco

*** SO2 INTERACTIONS -- 169/1973 Gannon west day ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 169 *

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 124.9 AND OCCURRED AT (300.0, 113.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
113.0 /	108.1	124.9	123.4	118.2	110.5	100.3	99.1	90.0	78.4

MET. DATA
DAY 85
*** SO2 INTERACTIONS -- 85/1973 ***

* METEOROLOGICAL DATA FOR DAY 85 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	90.0	88.0	2.60	531.0	293.0	5	5
2	40.0	43.0	2.10	530.0	291.0	5	5
3	20.0	20.0	2.60	529.0	292.0	4	4
4	90.0	86.0	3.10	528.0	291.0	4	4
5	90.0	88.0	3.10	527.0	291.0	5	5
6	90.0	87.0	5.10	526.0	291.0	5	5
7	110.0	114.0	6.20	32.0	292.0	4	4
8	110.0	109.0	7.70	102.0	293.0	4	4
9	110.0	114.0	8.20	171.0	294.0	4	4
10	110.0	108.0	8.20	241.0	294.0	4	4
11	110.0	108.0	8.20	310.0	295.0	4	4
12	100.0	96.0	8.70	380.0	296.0	3	3
13	100.0	104.0	8.70	449.0	296.0	3	3
14	100.0	99.0	8.70	519.0	296.0	4	4
15	100.0	105.0	9.30	519.0	296.0	4	4
16	90.0	92.0	9.80	519.0	296.0	4	4
17	90.0	92.0	8.20	519.0	296.0	4	4
18	90.0	92.0	8.20	519.0	295.0	4	4
19	80.0	78.0	6.20	537.0	294.0	4	4
20	110.0	111.0	7.70	593.0	294.0	4	4
21	110.0	109.0	8.20	648.0	293.0	4	4
22	100.0	102.0	7.20	703.0	293.0	4	4
23	110.0	107.0	7.20	758.0	292.0	4	4
24	120.0	117.0	7.20	814.0	291.0	4	4

DAILY: 85
24-HR/PD 1
SGROUP# 1
YEAR 1973

Gannon → Comco

Comco wastday

*** SO2 INTERACTIONS -- 85/1973 ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 85 *

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 84.5 AND OCCURRED AT (3000.0, 113.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
113.0 /	28.1	41.0	46.6	46.6	47.8	53.4	61.8	69.9	84.5

MET. DATA
DAY 249
*** SO2 INTERACTIONS -- 249/6/1973 ***

* METEOROLOGICAL DATA FOR DAY 249 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	250.0	251.0	1.50	1725.0	298.0	6	6
2	260.0	258.0	1.50	1733.0	298.0	6	6
3	210.0	210.0	2.10	1741.0	297.0	5	5
4	210.0	212.0	1.00	1750.0	297.0	6	6
5	220.0	225.0	2.10	1758.0	296.0	6	6
6	220.0	220.0	1.00	1766.0	296.0	6	6
7	240.0	243.0	1.50	181.0	296.0	6	6
8	270.0	272.0	1.50	417.0	300.0	5	5
9	250.0	249.0	1.50	653.0	303.0	4	4
10	170.0	171.0	2.10	889.0	304.0	3	3
11	270.0	270.0	3.10	1124.0	305.0	2	2
12	90.0	90.0	2.10	1360.0	305.0	1	1
13	50.0	48.0	3.60	1596.0	305.0	2	2
14	60.0	61.0	5.10	1832.0	305.0	3	3
15	110.0	106.0	2.10	1832.0	303.0	4	4
16	140.0	142.0	5.10	1832.0	306.0	3	3
17	140.0	137.0	4.10	1832.0	305.0	3	3
18	140.0	144.0	4.10	1832.0	304.0	4	4
19	130.0	133.0	2.60	1826.0	300.0	5	5
20	130.0	134.0	2.60	1805.0	299.0	6	6
21	140.0	145.0	2.10	1785.0	299.0	6	6
22	140.0	141.0	2.10	1764.0	298.0	6	6
23	140.0	145.0	1.50	1743.0	298.0	6	6
24	270.0	274.0	2.60	1723.0	297.0	6	6

DAILY: 249
3-HR/PD 6
SGROUP# 1
YEAR 1972

Hooker's Point → Comco

*** SO2 INTERACTIONS -- 249/6/1973 ***

* DAILY 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 18 FOR DAY 249 *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 264.6 AND OCCURRED AT (3500.0, 140.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
140.0 /	124.6	189.5	162.4	136.8	120.4	128.9	164.8	206.3	245.3

MET. DATA
DAY 351
*** SO2 INTERACTIONS -- 351/1973 ***

* METEOROLOGICAL DATA FOR DAY 351 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	140.0	140.0	7.20	1099.0	283.0	4	4
2	150.0	155.0	8.20	1122.0	283.0	4	4
3	150.0	153.0	6.70	1145.0	283.0	4	4
4	150.0	146.0	6.70	1168.0	282.0	4	4
5	140.0	138.0	6.70	1191.0	281.0	4	4
6	140.0	136.0	6.20	1214.0	281.0	4	4
7	140.0	137.0	6.20	1237.0	281.0	4	4
8	150.0	149.0	6.70	1260.0	282.0	4	4
9	140.0	137.0	6.70	1284.0	283.0	4	4
10	140.0	144.0	8.20	1307.0	283.0	4	4
11	120.0	120.0	8.70	1330.0	284.0	4	4
12	120.0	116.0	8.20	1353.0	285.0	4	4
13	130.0	133.0	7.20	1376.0	284.0	4	4
14	120.0	118.0	7.20	1399.0	284.0	4	4
15	130.0	133.0	8.20	1399.0	284.0	4	4
16	140.0	139.0	7.70	1399.0	284.0	4	4
17	140.0	144.0	6.70	1399.0	283.0	4	4
18	140.0	144.0	3.60	1390.0	280.0	5	5
19	140.0	143.0	3.10	1368.0	279.0	6	6
20	170.0	168.0	3.60	1347.0	279.0	5	5
21	210.0	209.0	3.10	1326.0	278.0	6	6
22	270.0	270.0	2.60	1305.0	278.0	6	6
23	240.0	239.0	3.10	1283.0	276.0	6	6
24	230.0	227.0	3.60	1262.0	276.0	5	5

DAILY: 351
24-HR/PD 1
SGROUP# 1
YEAR 1973

Hooker's Point → Comco

*** SO2 INTERACTIONS -- 351/1973 ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 351 *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 77.6 AND OCCURRED AT (3500.0, 140.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
140.0 /	47.5	58.6	60.2	54.7	47.3	44.7	42.7	49.5	64.3

MET. DATA
DAY 172
*** SO2 INTERACTIONS AT -- 172/4/1974 ***

* METEOROLOGICAL DATA FOR DAY 172 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	350.0	347.0	1.50	1772.0	299.0	6	6
2	330.0	330.0	1.50	1780.0	298.0	6	6
3	310.0	307.0	2.10	1787.0	298.0	6	6
4	310.0	314.0	2.10	1794.0	298.0	6	6
5	220.0	222.0	2.10	1802.0	296.0	6	6
6	230.0	227.0	2.10	80.0	296.0	5	5
7	250.0	246.0	1.50	304.0	297.0	4	4
8	250.0	249.0	2.60	527.0	300.0	3	3
9	280.0	279.0	3.10	751.0	301.0	2	2
10	220.0	224.0	3.10	974.0	303.0	2	2
11	220.0	224.0	1.00	1198.0	304.0	1	1
12	280.0	276.0	2.60	1421.0	305.0	1	1
13	270.0	268.0	3.10	1645.0	305.0	2	2
14	100.0	105.0	6.20	1868.0	305.0	3	3
15	90.0	91.0	6.20	1868.0	304.0	4	4
16	120.0	122.0	6.20	1868.0	304.0	4	4
17	170.0	171.0	5.10	1868.0	299.0	4	4
18	70.0	68.0	2.10	1868.0	298.0	3	3
19	320.0	318.0	2.60	1868.0	299.0	4	4
20	300.0	300.0	2.60	1855.0	300.0	5	5
21	300.0	297.0	1.00	1834.0	299.0	6	6
22	350.0	351.0	2.60	1812.0	298.0	6	6
23	300.0	298.0	1.50	1790.0	299.0	6	6
24	350.0	348.0	1.50	1768.0	298.0	6	6

DAILY: 172
3-HR/PD 4
SGROUP# 1
YEAR 1974

Nitram → Comco

*** SO2 INTERACTIONS AT -- 172/4/1974 ***

* DAILY 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 12 FOR DAY 172 *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 103.9 AND OCCURRED AT (300.0, 219.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
219.0 /	13.2	103.9	49.7	24.5	12.2	7.2	5.4	4.5	4.6

MET. DATA
DAY 266
*** SO2 INTERACTIONS -- 266/1974 ***

* METEOROLOGICAL DATA FOR DAY 266 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	270.0	272.0	2.60	1620.0	298.0	6	6
2	270.0	275.0	2.10	1603.0	297.0	6	6
3	240.0	238.0	2.60	1587.0	297.0	6	6
4	250.0	248.0	2.60	1571.0	297.0	6	6
5	210.0	214.0	3.60	1554.0	297.0	5	5
6	220.0	216.0	4.10	1538.0	297.0	5	5
7	220.0	223.0	4.10	118.0	297.0	4	4
8	220.0	216.0	4.60	302.0	298.0	3	3
9	230.0	233.0	5.10	486.0	298.0	4	4
10	260.0	264.0	4.60	670.0	298.0	4	4
11	230.0	232.0	5.10	855.0	300.0	4	4
12	220.0	216.0	5.70	1039.0	301.0	4	4
13	220.0	216.0	6.20	1223.0	302.0	4	4
14	210.0	212.0	5.10	1407.0	304.0	3	3
15	230.0	226.0	6.20	1407.0	304.0	4	4
16	220.0	220.0	7.70	1407.0	303.0	4	4
17	240.0	245.0	7.20	1407.0	301.0	4	4
18	230.0	231.0	6.70	1407.0	300.0	4	4
19	220.0	224.0	5.10	1399.0	299.0	4	4
20	230.0	228.0	6.20	1385.0	299.0	4	4
21	220.0	216.0	7.20	1372.0	299.0	4	4
22	220.0	216.0	5.10	1359.0	299.0	4	4
23	220.0	224.0	4.10	1345.0	298.0	4	4
24	210.0	208.0	4.10	1332.0	298.0	5	5

DAILY: 266
24-HR/PD 1
SGROUP# 1
YEAR 1974

Nitram → Comco

*** SO2 INTERACTIONS -- 266/1974 ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 266 *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 30.8 AND OCCURRED AT (500.0, 219.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
219.0 /	2.6	21.6	30.8	28.6	23.6	19.4	16.0	14.2	13.2

MET. DATA
DAY 9
*** SO2 INTERACTIONS -- 9/1973 ***

* METEOROLOGICAL DATA FOR DAY 9 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	140.0	145.0	4.10	1418.0	289.0	4	4
2	170.0	166.0	5.70	1353.0	286.0	4	4
3	170.0	166.0	6.20	1289.0	285.0	4	4
4	170.0	174.0	6.20	1224.0	284.0	4	4
5	190.0	186.0	6.20	1159.0	283.0	4	4
6	190.0	189.0	4.10	1094.0	283.0	4	4
7	210.0	213.0	3.60	1030.0	281.0	4	4
8	210.0	214.0	4.10	965.0	281.0	4	4
9	220.0	220.0	5.10	900.0	282.0	4	4
10	230.0	234.0	4.10	835.0	283.0	4	4
11	230.0	231.0	4.60	770.0	284.0	4	4
12	210.0	207.0	5.10	706.0	285.0	4	4
13	230.0	234.0	5.70	641.0	285.0	3	3
14	240.0	245.0	5.10	576.0	286.0	3	3
15	240.0	240.0	5.70	576.0	285.0	4	4
16	220.0	223.0	5.70	576.0	283.0	4	4
17	200.0	201.0	6.20	576.0	283.0	4	4
18	210.0	214.0	5.10	574.0	281.0	4	4
19	220.0	216.0	5.10	564.0	281.0	4	4
20	220.0	221.0	4.10	554.0	281.0	4	4
21	210.0	209.0	5.10	544.0	281.0	4	4
22	210.0	210.0	5.10	535.0	281.0	4	4
23	210.0	214.0	5.10	525.0	281.0	4	4
24	210.0	215.0	4.10	515.0	280.0	4	4

21

DAILY: 9
24-HR/PD 1
SGROUP# 1
YEAR 1973

Nitram → Comco

*** SO2 INTERACTIONS -- 9/1973 ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 9 *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 45.1 AND OCCURRED AT (500.0, 219.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
219.0 /	11.7	33.1	45.1	42.4	31.8	28.5	24.3	27.5	30.8

MET. DATA
DAY 253
*** SO2 INTERACTIONS -- 253/4/1974 ***

* METEOROLOGICAL DATA FOR DAY 253 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	240.0	245.0	2.60	1407.0	296.0	6	6
2	210.0	209.0	2.10	1382.0	296.0	6	6
3	210.0	209.0	1.50	1357.0	296.0	6	6
4	270.0	270.0	1.50	1331.0	296.0	6	6
5	250.0	250.0	3.10	1306.0	297.0	5	5
6	220.0	225.0	2.60	1280.0	297.0	4	4
7	230.0	226.0	2.10	1255.0	297.0	4	4
8	210.0	215.0	1.50	1229.0	298.0	4	4
9	210.0	213.0	2.60	1204.0	300.0	4	4
10	220.0	217.0	2.10	1179.0	301.0	4	4
11	250.0	247.0	2.60	1153.0	303.0	3	3
12	250.0	248.0	3.10	1128.0	304.0	3	3
13	120.0	121.0	2.10	1102.0	303.0	3	3
14	220.0	216.0	3.10	1077.0	304.0	4	4
15	90.0	86.0	4.10	1077.0	305.0	3	3
16	70.0	68.0	4.60	1077.0	305.0	3	3
17	210.0	210.0	3.10	1077.0	306.0	3	3
18	160.0	156.0	5.10	1077.0	305.0	4	4
19	160.0	163.0	4.10	1089.0	302.0	4	4
20	200.0	198.0	3.60	1122.0	302.0	4	4
21	250.0	255.0	4.10	1156.0	301.0	5	5
22	260.0	264.0	3.60	1189.0	300.0	4	4
23	260.0	260.0	3.60	1223.0	300.0	5	5
24	250.0	249.0	3.10	1256.0	299.0	6	6

DAILY: 253
3-HR/PD 4
SGROUP# 1
YEAR 1974

Gulf Coast Lead → Comco

*** SO2 INTERACTIONS -- 253/4/1974 ***

* DAILY 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 12 FOR DAY 253 *

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 118.3 AND OCCURRED AT (300.0, 250.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
250.0 /	5.5	118.3	101.0	97.2	95.4	37.6	14.8	33.6	23.7

MET. DATA
DAY 321
*** SO2 INTERACTIONS -- 321/1973 ***

* METEOROLOGICAL DATA FOR DAY 321 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	170.0	172.0	2.60	1296.0	292.0	6	6
2	170.0	175.0	2.60	1290.0	292.0	5	5
3	170.0	173.0	2.10	1284.0	291.0	4	4
4	240.0	245.0	3.10	1278.0	292.0	4	4
5	230.0	229.0	3.60	1272.0	292.0	4	4
6	240.0	243.0	3.60	1267.0	292.0	4	4
7	250.0	246.0	4.60	1261.0	292.0	4	4
8	240.0	236.0	3.60	1255.0	292.0	4	4
9	220.0	225.0	4.60	1249.0	293.0	3	3
10	260.0	256.0	4.10	1243.0	295.0	3	3
11	250.0	251.0	4.60	1237.0	298.0	3	3
12	260.0	256.0	4.60	1232.0	300.0	3	3
13	240.0	243.0	4.60	1226.0	300.0	4	4
14	240.0	236.0	4.10	1220.0	300.0	4	4
15	250.0	252.0	3.60	1220.0	300.0	3	3
16	250.0	250.0	4.10	1220.0	300.0	3	3
17	240.0	238.0	3.60	1220.0	299.0	4	4
18	280.0	284.0	6.20	1225.0	298.0	4	4
19	280.0	278.0	4.10	1236.0	298.0	4	4
20	250.0	247.0	4.60	1247.0	297.0	4	4
21	250.0	253.0	4.60	1259.0	296.0	4	4
22	260.0	260.0	4.10	1270.0	296.0	5	5
23	250.0	249.0	3.60	1281.0	295.0	5	5
24	270.0	273.0	2.60	1292.0	294.0	6	6

DAILY: 321
24-HR/PD 1
SGROUP# 1
YEAR 1973

Gulf Coast Lead → Comco

*** SO2 INTERACTIONS -- 321/1973 ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 321 *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 49.4 AND OCCURRED AT (3500.0, 250.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
250.0 /	1.7	41.5	43.0	32.8	23.8	17.6	13.2	13.3	37.8

MET. DATA
DAY 221
*** SO2 INTERACTIONS -- 221/4/1974 ***

* METEOROLOGICAL DATA FOR DAY 221 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	250.0	247.0	2.60	1457.0	298.0	6	6
2	280.0	282.0	4.10	1468.0	298.0	5	5
3	280.0	285.0	3.60	1479.0	298.0	5	5
4	300.0	301.0	3.10	1490.0	298.0	6	6
5	290.0	288.0	2.10	1502.0	298.0	6	6
6	280.0	284.0	2.60	1513.0	298.0	6	6
7	270.0	273.0	2.10	199.0	298.0	5	5
8	330.0	334.0	3.60	399.0	300.0	4	4
9	350.0	353.0	3.60	600.0	301.0	3	3
10	290.0	289.0	3.60	800.0	303.0	2	2
11	290.0	293.0	2.10	1001.0	304.0	1	1
12	330.0	330.0	2.60	1201.0	305.0	1	1
13	10.0	13.0	2.60	1402.0	305.0	1	1
14	330.0	331.0	3.60	1602.0	306.0	2	2
15	90.0	95.0	5.10	1602.0	305.0	3	3
16	180.0	184.0	5.10	1602.0	302.0	3	3
17	150.0	150.0	3.60	1602.0	301.0	3	3
18	180.0	177.0	3.10	1602.0	301.0	3	3
19	210.0	213.0	3.60	1602.0	301.0	4	4
20	220.0	217.0	3.10	1598.0	301.0	5	5
21	250.0	249.0	3.10	1593.0	300.0	5	5
22	280.0	282.0	3.10	1588.0	300.0	6	6
23	280.0	284.0	2.10	1583.0	299.0	6	6
24	280.0	278.0	2.10	1577.0	299.0	6	6

DAILY: 309
3-HR/PD 3
SGROUP# 1
YEAR 1972

Gardinier → Comco

*** SO2 INTERACTIONS -- 309/3/1972 ***

* DAILY 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 9 FOR DAY 309 *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 162.5 AND OCCURRED AT (300.0, 341.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
341.0 /	47.4	162.5	153.1	115.1	81.7	59.8	46.1	38.5	32.7

MET. DATA
DAY 149
*** SO2 INTERACTIONS -- 149/1970 ***

* METEOROLOGICAL DATA FOR DAY 149 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	280.0	276.0	3.10	1193.0	295.0	5	5
2	290.0	290.0	3.60	1170.0	295.0	4	4
3	280.0	280.0	4.60	1147.0	295.0	4	4
4	280.0	276.0	4.60	1124.0	295.0	4	4
5	280.0	284.0	4.60	1101.0	295.0	4	4
6	290.0	290.0	4.60	1078.0	295.0	4	4
7	280.0	285.0	4.60	1055.0	296.0	4	4
8	290.0	290.0	4.60	1032.0	296.0	4	4
9	300.0	304.0	7.20	1009.0	297.0	4	4
10	310.0	307.0	3.60	986.0	295.0	4	4
11	300.0	304.0	3.60	963.0	296.0	3	3
12	290.0	286.0	3.60	940.0	296.0	3	3
13	300.0	299.0	3.10	917.0	296.0	2	2
14	300.0	304.0	4.10	894.0	299.0	3	3
15	270.0	274.0	3.60	894.0	299.0	3	3
16	260.0	262.0	4.10	894.0	300.0	3	3
17	270.0	273.0	4.10	894.0	299.0	4	4
18	280.0	281.0	4.60	894.0	299.0	4	4
19	320.0	318.0	3.60	894.0	297.0	4	4
20	280.0	276.0	3.10	919.0	296.0	5	5
21	230.0	226.0	2.60	954.0	295.0	4	4
22	260.0	259.0	3.10	988.0	295.0	5	5
23	280.0	285.0	3.60	1022.0	295.0	4	4
24	280.0	277.0	3.10	1056.0	295.0	5	5

DAILY: 149
24-HR/PD 1
SGROUP# 1
YEAR 1970

Gardinier → Comco

*** SO2 INTERACTIONS -- 149/1970 ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 149 *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 38.1 AND OCCURRED AT (1900.0, 341.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
341.0 /	0.3	0.7	0.9	4.4	0.6	11.1	38.1	21.2	9.2

DAILY: 221
3-HR/PD 4
SGROUP# 1
YEAR 1974
*** SO2 INTERACTIONS -- 221/4/1974 ***

Comco → Gannon
comco worst day

* DAILY 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 12 FOR DAY 221 *

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 920.0 AND OCCURRED AT (3000.0, 293.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
293.0 /	33.8	98.3	41.0	21.0	11.5	7.5	44.8	734.1	920.0

MET. DATA
DAY 213
*** SO2 INTERACTIONS -- 213/1970 ***

* METEOROLOGICAL DATA FOR DAY 213 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	290.0	289.0	4.60	2019.0	299.0	4	4
2	280.0	280.0	3.10	2028.0	298.0	5	5
3	240.0	239.0	2.60	2036.0	297.0	5	5
4	290.0	290.0	2.60	2045.0	296.0	6	6
5	240.0	237.0	2.10	2054.0	296.0	6	6
6	290.0	291.0	2.60	17.0	296.0	5	5
7	270.0	269.0	3.10	281.0	296.0	4	4
8	310.0	307.0	4.10	545.0	299.0	3	3
9	330.0	335.0	3.10	810.0	302.0	2	2
10	320.0	320.0	4.60	1074.0	303.0	3	3
11	340.0	342.0	5.10	1338.0	304.0	3	3
12	340.0	345.0	4.10	1602.0	305.0	2	2
13	320.0	319.0	4.60	1867.0	306.0	2	2
14	310.0	306.0	4.60	2131.0	307.0	2	2
15	350.0	350.0	5.10	2131.0	308.0	3	3
16	340.0	338.0	6.20	2131.0	308.0	4	4
17	340.0	338.0	5.70	2131.0	307.0	4	4
18	20.0	24.0	6.20	2131.0	303.0	4	4
19	350.0	346.0	4.10	2131.0	302.0	4	4
20	340.0	339.0	3.60	2121.0	300.0	4	4
21	360.0	356.0	3.10	2108.0	300.0	5	5
22	350.0	347.0	3.10	2094.0	300.0	6	6
23	320.0	318.0	3.10	2080.0	300.0	6	6
24	200.0	199.0	3.10	2067.0	298.0	6	6

DAILY: 213
24-HR/PD 1
SGROUP# 1
YEAR 1970

Comco → Gannon

comco wast day

*** SO2 INTERACTIONS -- 213/1970 ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 213 *

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 32.8 AND OCCURRED AT (3000.0, 293.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	1000.0	1400.0	1900.0	2400.0	3000.0
293.0 /	22.9	24.8	20.2	15.5	10.9	7.5	15.4	21.0	32.8

MET. DATA
DAY 309
*** SO2 INTERACTIONS -- 309/3/1972 ***

* METEOROLOGICAL DATA FOR DAY 309 *

HOUR	FLOW VECTOR (DEGREES)	RANDOM FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	INPUT STABILITY CATEGORY	ADJUSTED STABILITY CATEGORY
1	280.0	279.0	1.50	1520.0	295.0	6	6
2	250.0	250.0	1.50	1521.0	294.0	6	6
3	290.0	289.0	2.60	1522.0	294.0	6	6
4	280.0	280.0	1.50	1524.0	294.0	6	6
5	40.0	37.0	1.50	1525.0	293.0	6	6
6	290.0	291.0	2.10	1526.0	295.0	5	5
7	350.0	349.0	3.10	44.0	295.0	4	4
8	350.0	347.0	1.50	257.0	298.0	3	3
9	340.0	345.0	2.60	471.0	299.0	3	3
10	360.0	360.0	2.60	684.0	301.0	2	2
11	20.0	22.0	3.60	897.0	301.0	2	2
12	70.0	75.0	3.60	1110.0	303.0	2	2
13	70.0	69.0	3.60	1323.0	303.0	2	2
14	70.0	66.0	3.60	1536.0	304.0	3	3
15	70.0	70.0	4.60	1536.0	303.0	3	3
16	90.0	88.0	4.10	1536.0	303.0	3	3
17	110.0	108.0	3.60	1536.0	302.0	4	4
18	120.0	124.0	2.60	1538.0	299.0	5	5
19	130.0	126.0	3.60	1544.0	298.0	5	5
20	150.0	149.0	3.60	1550.0	298.0	5	5
21	190.0	186.0	2.10	1557.0	297.0	6	6
22	200.0	197.0	2.10	1563.0	296.0	6	6
23	210.0	208.0	2.10	1569.0	296.0	6	6
24	270.0	269.0	2.60	1575.0	296.0	6	6

```
 ***  IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1   COMCO -- 4 MARCH   ***

 CALCULATE (CONCENTRATION=1,DEPOSITION=2)                          ISW(1) =   1
 RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)           ISW(2) =   1
 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) =   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) =   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) =   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 (RURAL=0,URBAN MODE 1=1,URBAN MODE 2=2)       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) =   1

 NUMBER OF INPUT SOURCES                                          NSOURC =   2
 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 =   0
 NUMBER OF Y (THETA) GRID VALUES                                  NYPNTS =   0
 NUMBER OF DISCRETE RECEPTORS                                     NXWYPT =   7
 SOURCE EMISSION RATE UNITS CONVERSION FACTOR                        TK =.10000E 07
 ENTRAINMENT COEFFICIENT FOR UNSTABLE ATMOSPHERE                  BETA1 =0.600
 ENTRAINMENT COEFFICIENT FOR STABLE ATMOSPHERE                    BETA2 =0.600
 HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED    ZR =   7.00  METERS
 LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA                        IMET =   9
 DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION DECAY =0.000000E 00
 SURFACE STATION NO.                                                ISS = 12842
 YEAR OF SURFACE DATA                                               ISY = 70
 UPPER AIR STATION NO.                                              IUS = 12842
 YEAR OF UPPER AIR DATA                                             IUY = 70
 ALLOCATED DATA STORAGE                                           LIMIT = 43500 WORDS
 REQUIRED DATA STORAGE FOR THIS PROBLEM RUN                       MIMIT =   535 WORDS
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*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO -- 4 MARCH ***

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

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*** 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	.10000E 00	.10000E 00	.10000E 00	.10000E 00	.10000E 00	.10000E 00
B	.15000E 00	.15000E 00	.15000E 00	.15000E 00	.15000E 00	.15000E 00
C	.20000E 00	.20000E 00	.20000E 00	.20000E 00	.20000E 00	.20000E 00
D	.25000E 00	.25000E 00	.25000E 00	.25000E 00	.25000E 00	.25000E 00
E	.30000E 00	.30000E 00	.30000E 00	.30000E 00	.30000E 00	.30000E 00
F	.30000E 00	.30000E 00	.30000E 00	.30000E 00	.30000E 00	.30000E 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

*** X,Y COORDINATES OF DISCRETE RECEPTORS ***
(METERS)

(320000.0,3112000.0), (325000.0,3112000.0), (327000.0,3112000.0), (329000.0,3117500.0), (331000.0,3175000.0),
(341000.0,3165000.0), (342500.0,3174000.0), (

*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO -- 4 MARCH ***

SOURCE # 1---OIL HEATER
SOURCE # 2---SWEEP DRYER

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (G/S) TYPE=2 (G/S) *PER M**2	X (M)	Y (M)	BASE ELEV. (M)	HEIGHT (M)	TEMP. TYPE=0 (DEG.K) VERT.DIM. TYPE=1 (M)	EXIT VEL. TYPE=0 (M/S) HORZ.DIM. TYPE=1,2 (M)	DIAM. TYPE=0 (M)	BLDG. HEIGHT TYPE=0 (M)	BLDG. LENGTH TYPE=0 (M)	BLDG. WIDTH TYPE=0 (M)
1	0	0	0	0.62	361400	3086900	0.0	9.14	561.0	8.60	0.36	0.00	0.00	0.00
2	0	0	0	3.56	361400	3086900	0.0	22.90	366.0	26.70	0.35	0.00	0.00	0.00

```
*N*-DAY
365 DAYS
SGROUP#  1
***  IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1   COMCO -- 4 MARCH   ***

YEAR 1970
* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER)      *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *
   - X -      - Y -        CON.       - X -      - Y -        CON.       - X -      - Y -        CON.
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  320000.0  3112000.0          0.0    325000.0  3112000.0          0.0    327000.0  3112000.0          0.0
  329000.0  3117500.0          0.0    331000.0  3175000.0          0.0    341000.0  3165000.0          0.0
  342500.0  3174000.0          0.0
```

HIGH
 3-HR
SGROUP# 1
YEAR 1970
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1   COMCO -- 4 MARCH   ***

* HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER)   *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	8.02837	(183, 2)	325000.0	3112000.0	3.50912	(183, 1)
327000.0	3112000.0	2.60330	(183, 1)	329000.0	3117500.0	6.33087	(190, 1)
331000.0	3175000.0	1.66911	(219, 1)	341000.0	3165000.0	1.40466	(237, 2)
342500.0	3174000.0	2.40363	(116, 8)				

HIGH
24-HR
SGROUP# 1
YEAR 1970
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO -- 4 MARCH ***

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

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	1.69865	(183, 1)	325000.0	3112000.0	0.54423	(183, 1)
327000.0	3112000.0	0.43562	(130, 1)	329000.0	3117500.0	0.79157	(190, 1)
331000.0	3175000.0	0.38189	(233, 1)	341000.0	3165000.0	0.19628	(237, 1)
342500.0	3174000.0	0.36618	(294, 1)				

```
*N*-DAY
365 DAYS
SGROUP#  1
***  IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1   COMCO -- 4 MARCH   ***

YEAR 1971
* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER)      *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *
   - X -       - Y -         CON.       - X -       - Y -         CON.       - X -       - Y -         CON.
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  320000.0  3112000.0           0.0    325000.0  3112000.0           0.0    327000.0  3112000.0           0.0
  329000.0  3117500.0           0.0    331000.0  3175000.0           0.0    341000.0  3165000.0           0.0
  342500.0  3174000.0           0.0
```

HIGH
3-HR
SGROUP# ALL
YEAR 1971
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS I ; COMCO -- 4 MARCH ***

* HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	4.06286	(219, 1)	325000.0	3112000.0	4.06287	(184, 1)
327000.0	3112000.0	5.05003	(363, 7)	329000.0	3117500.0	5.01777	(104, 2)
331000.0	3175000.0	1.12939	(288, 1)	341000.0	3165000.0	1.25077	(297, 7)
342500.0	3174000.0	1.70505	(333, 8)				

HIGH
24-HR
SGROUP# 1
YEAR 1971
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO -- 4 MARCH ***

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

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	0.58451	(199, 1)	325000.0	3112000.0	0.68799	(287, 1)
327000.0	3112000.0	0.68599	(363, 1)	329000.0	3117500.0	1.07521	(29, 1)
331000.0	3175000.0	0.15318	(287, 1)	341000.0	3165000.0	0.15635	(297, 1)
342500.0	3174000.0	0.21965	(333, 1)				

```
*N*-DAY
366 DAYS
SGROUP#  1
***  IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1   COMCO -- 4 MARCH   ***

YEAR 1972
* 366-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER)      *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *
   - X -       - Y -          CON.        - X -       - Y -          CON.        - X -       - Y -          CON.
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  320000.0  3112000.0            0.0     325000.0  3112000.0            0.0     327000.0  3112000.0            0.0
  329000.0  3117500.0            0.0     331000.0  3175000.0            0.0     341000.0  3165000.0            0.0
  342500.0  3174000.0            0.0
```

HIGH
 3-HR
SGROUP# 1
YEAR 1972
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1   COMCO -- 4 MARCH   ***

* HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER)   *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	4.79060	(25, 1)	325000.0	3112000.0	5.62544	(323, 7)
327000.0	3112000.0	5.38697	(194, 2)	329000.0	3117500.0	6.42992	(55, 1)
331000.0	3175000.0	1.66491	(88, 2)	341000.0	3165000.0	1.67619	(186, 1)
342500.0	3174000.0	1.04161	(359, 8)				

HIGH
24-HR
SGROUP# 1
YEAR 1972
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO -- 4 MARCH ***

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

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	0.65793	(293, 1)	325000.0	3112000.0	0.83523	(293, 1)
327000.0	3112000.0	0.78676	(194, 1)	329000.0	3117500.0	1.07265	(55, 1)
331000.0	3175000.0	0.20811	(88, 1)	341000.0	3165000.0	0.20954	(186, 1)
342500.0	3174000.0	0.20085	(359, 1)				

N-DAY
365 DAYS
SGROUP# 1
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO -- 4 MARCH ***

YEAR 1973
* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	- X -	- Y -	CON.	- X -	- Y -	CON.
320000.0	3112000.0	0.0	325000.0	3112000.0	0.0	327000.0	3112000.0	0.0
329000.0	3117500.0	0.0	331000.0	3175000.0	0.0	341000.0	3165000.0	0.0
342500.0	3174000.0	0.0						

HIGH
3-HR
SGROUP# 1
YEAR 1973
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO -- 4 MARCH ***

* HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	3.90446	(2, 1)	325000.0	3112000.0	6.67663	(152, 1)
327000.0	3112000.0	4.45825	(325, 8)	329000.0	3117500.0	2.56147	(319, 8)
331000.0	3175000.0	1.13040	(273, 1)	341000.0	3165000.0	0.93883	(170, 8)
342500.0	3174000.0	1.70995	(170, 2)				

HIGH
24-HR
SGROUP# 1
YEAR 1973
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO -- 4 MARCH ***

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

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	0.49756	(2, 1)	325000.0	3112000.0	0.93408	(152, 1)
327000.0	3112000.0	0.73237	(152, 1)	329000.0	3117500.0	0.48826	(15, 1)
331000.0	3175000.0	0.15295	(150, 1)	341000.0	3165000.0	0.15339	(170, 1)
342500.0	3174000.0	0.53891	(170, 1)				

```
*N*-DAY
365 DAYS
SGROUP#  1
***  IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1   COMCO -- 4 MARCH   ***

YEAR 1974
* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER)     *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *
   - X -      - Y -         CON.       - X -      - Y -         CON.       - X -      - Y -         CON.
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  320000.0  3112000.0          0.0    325000.0  3112000.0          0.0    327000.0  3112000.0          0.0
  329000.0  3117500.0          0.0    331000.0  3175000.0          0.0    341000.0  3165000.0          0.0
  342500.0  3174000.0          0.0
```

HIGH
3-HR
SGROUP# 1
YEAR 1974
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO -- 4 MARCH ***

* HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

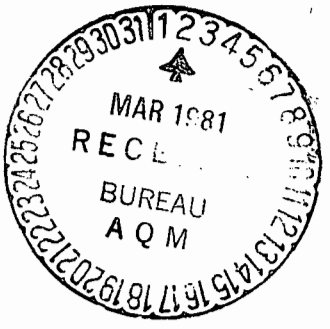
- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	4.26733	(261, 2)	325000.0	3112000.0	4.85745	(104, 8)
327000.0	3112000.0	6.79370	(45, 2)	329000.0	3117500.0	3.16823	(188, 1)
331000.0	3175000.0	2.31589	(15, 1)	341000.0	3165000.0	1.25256	(206, 8)
342500.0	3174000.0	2.00958	(157, 1)				

HIGH
24-HR
SGROUP# 1
YEAR 1974
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO -- 4 MARCH ***

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

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	0.60965	(261, 1)	325000.0	3112000.0	0.81701	(45, 1)
327000.0	3112000.0	1.12264	(45, 1)	329000.0	3117500.0	0.42772	(188, 1)
331000.0	3175000.0	0.28949	(15, 1)	341000.0	3165000.0	0.16706	(206, 1)
342500.0	3174000.0	0.32346	(157, 1)				

Florida Power
CORPORATION



February 18, 1981

Mr. Frank Shindle
Air Section
Hillsborough County
Environmental Protection Commission
1900 Ninth Avenue
Tampa, FL 33605

Subject: COMCO's Coal-Oil Mixture Plant
Port Sutton, Tampa

Dear Mr. Shindle:

Enclosed is one copy of COMCO's application for a permit to construct an air pollution source(s) at Port Sutton, Tampa. This permit is required for their proposed coal-oil mixture plant scheduled to be operational no later than November, 1981. For a complete discription of the facility, please refer to Attachments A and B of the application.

Also enclosed is a check for $50 made payable to the Board of County Commissioners for the permit application fee.

For your information, on February 16, 1981, we hand delivered our application and application fee to the Tampa office of the Florida Department of Environmental Regulation.

If we can provide any additional information, or if you would like to discuss this project, please let me know. We would be happy to meet with you at your convenience to provide an overview of the project. My phone number is (813) 866-4511.

Sincerely,

W. W. Vierday
Manager
Licensing Affairs

WWV/kd
Enclosures
cc Mr. Steve Smallwood, FDER, Tallahassee ⇦ THIS COPY FOR
Mr. Dan Williams, FDER, Tampa
Mr. Joe Cochran, COMCO
Mr. Frank Kirkconnell, COMCO
Mr. W. S. O'Brien

Florida Power
CORPORATION

February 18, 1981

Mr. Bob Carpenter
Water Section
Hillsborough County
Environmental Protection Commission
1900 Ninth Avenue
Tampa, FL 33605

Subject: COMCO's Coal-Oil Mixture Plant
Port Sutton, Tampa

Dear Mr. Carpenter:

Enclosed is one copy of COMCO's application for a permit to construct an evaporation and percolation pond at Port Sutton, Tampa. This permit is required for their proposed coal-oil mixture plant scheduled to be operational no later than November, 1981. For a complete discription of the facility, please refer to Attachments A and B of the application.

Also enclosed is a check for $50 made payable to the Board of County Commissioners for the permit application fee.

For your information, on February 16, 1981, we hand delivered our application and application fee to the Tampa office of the Florida Department of Environmental Regulation.

If we can provide any additional information, or if you would like to discuss this project, please let me know. We would be happy to meet with you at your convenience to provide an overview of the project. My phone number is (813) 866-4511.

Sincerely,

W. W. Vierday
Manager
Licensing Affairs

WWV/kd
Enclosures
cc Mr. Steve Smallwood, FDER, Tallahassee THIS COPY FOR
Mr. Dan Williams, FDER, Tampa
Mr. Joe Cochran, COMCO
Mr. Frank Kirkconnell, COMCO
Mr. W. S. O'Brien

COMCO/DER Meeting — Feb 20, 1981 (Tallahassee)

Name	Organization	Phone
Larry George	BAQM	(904) 488-1344
Tom Rogers	BAQM	" "
Tim Powell	BAQM	" "
David Buff	Environmental Science & Eng.	904/372-3318
S. Frank Kirkconnell	ComCo	813-866-5106
Mary F. Clark	FDER/OGC	904/488-9730
Steve Smallwood	FDER/BAQM	904/488-1344
BUD VIERDAY	representing COMCO	813/866-4511

.DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#0000000039805 COE# DER PROCESSOR:POWELL DER OFFICE:TLH
FILE NAME:COMCO DATE FIRST REC: 02/16/81 APPLICATION TYPE:AC
APPL NAME:S. FRANK KIRKCONNELL APPL PHONE:(813)866-5106 PROJECT COUNTY:29
ADDR:P. O. BOX 15208 CITY:ST. PETERSBURG ST:FLZIP:33733
AGNT NAME:J. W. COCHRAN AGNT PHONE:(813)866-5238
ADDR:(SAME) CITY: ST: ZIP:

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
APPL COMPLETE DATE: 03/05/81 COMMENTS NEC:Y DATE REQ: / / DATE REC: / /
LETTER OF INTENT NEC:Y DATE WHEN INTENT ISSUED: / / WAIVER DATE: / /

HEARING REQUEST DATES: / / / / / /
HEARING WITHDRAWN/DENIED/ORDER -- DATES: / / / / / /
HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED:N
*** RECORD HAS BEEN SUCCESSFULLY UPDATED *** 06/04/81 13:54:50
FEE PD DATE#1:02/16/81 $0020 RECEIPT#00033562 REFUND DATE: / / REFUND $
FEE PD DATE#2: / / $ RECEIPT# REFUND DATE: / / REFUND $
APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:IS DATE:06/02/81
REMARKS:COMCO UNIT NO. 1 - 30 TPH COM PLANT. BAGHOUSES FOR COAL HANDLING AND
PULVERIZING. ALSO SMALL BOILER FOR TANK HEATING PROPOSING 2.5% S. LAT/LONG =
27DEG 54'10"/82DEG24'30"; UTM = 361.400E/3086.900N.
PERMIT SIGNED 2 JUN 81 - IN MAIL 3 JUN '81.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

No 33562

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from COMCO JOINT VENTURE Date February 16, 1981

Address P.O. Box 15208, St. Petersburg, Fl, 33733 Dollars $ 20.00

Applicant Name & Address S. Frank Kirkconnell - (same)

Source of Revenue

Revenue Code 0101 Application Number AC 29-39805

By Tim Powell

February 16, 1981

Mr. Dan Williams
Air Permitting Section
Florida Department of Environmental Regulation
7601 N. Highway 301
Tampa, Florida

Re: COMCO's coal-oil mixture plant
Port Sutton, Tampa

Dear Mr. Williams:

Enclosed herewith are five (5) copies each of COMCO's applications for permit to construct an air pollution source(s) and an evaporation and percolation pond at the Port Sutton site, Tampa, Hillsborough County.

Subject permits are required for the proposed coal oil mixture plant scheduled to be operational no later than November, 1981. For a complete description of the facility we make reference to Attachments A and B of the respective application forms.

Please find our enclosed checks ($20.00 each) for permit fees.

Sincerely,

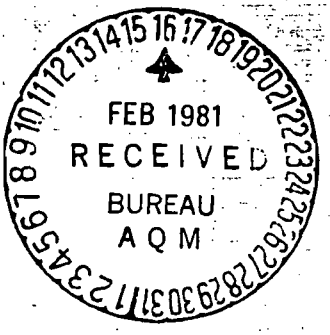
FLORIDA POWER CORPORATION

W. W. Vierday

W. W. Vierday, Manager
Licensing Affairs

WWV:ms
Encl.

AC 29-39805



CONSTRUCTION PERMIT APPLICATION--
COMCO, PORT SUTTON, FLORIDA

Prepared for:

COMCO
St. Petersburg, Florida

Prepared by:

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
Gainesville, Florida

February 1981

ESE No. 81-107-100

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Coal-Oil Mixture Prep. Plant [X] New[1] [ ] Existing[1]

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

COMPANY NAME: COMCO COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) COMCO Unit 1

SOURCE LOCATION: Street Pendola Pt. Road, Port Sutton City Tampa

UTM: East 361,400 North 3,086,900

Latitude 27 ° 54 ' 10 "N Longitude 82 ° 24 ' 30 "W

APPLICANT NAME AND TITLE: S. Frank Kirkconnell Development Engineer

APPLICANT ADDRESS: P.O. Box 15208, St. Petersburg, Florida 33733

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of COMCO

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: S. Frank Kirkconnell

S. Frank Kirkconnell, Development Engineer
Name and Title (Please Type)

Date: 2/16/81 Telephone No. (813)866-5106

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 the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed: J. W. Cochran

J. W. Cochran
Name (Please Type)

(Affix Seal)

COMCO/Electric Fuels Corporation
Company Name (Please Type)

P. O. Box 15208, St. Pete, FL 33733
Mailing Address (Please Type)

J. W. COCHRAN REGISTERED STATE OF FLORIDA ENGINEER

Florida Registration No. 26007 Date: 2/16/81 Telephone No. (813)866-5938

[1] See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

The subject Preparation Plant is designed to pulverize 15TPH of coal and mix it with an equal amount of #6 oil; thereby, producing 30TPH of 50/50 coal/oil mixture (COM). A tramp dust collection system with baghouse will trap fugitive dust from the coal handling system and other baghouses will limit particulate emissions from the grinding operation. A small boiler is also required for tank heating. Project will result in full compliance.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction April, 1981 Completion of Construction November, 1981

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Tramp Dust Collection System $ 47,000

Grinding System Baghouses $ 52,000

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ___ Yes _X_ No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ---- ; if seasonal, describe: N/A

G. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? Yes
   a. If yes, has "offset" been applied? No
   b. If yes, has "Lowest Achievable Emission Rate" been applied? No
   c. If yes, list non-attainment pollutants.
      Particulates, Ozone
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. No
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirements apply to this source? If yes, see Sections VI and VII. No
4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? Yes
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable. See Attachments A through D.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Coal	Dust	approx. 1	30,000 lb/hr.	

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): 60,000 lb/hr.
2. Product Weight (lbs/hr): 60,000 lb/hr.

C. Airborne Contaminants Emitted: See Attachment Table C-2

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
			-		-		
			-		-		

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Micropulsaire 80R3-10	Fugitive dust	99.9%	Submicron	Manuf. Guar.
pulse type-or-equivalent				Air/Cloth=5.
Griffin Jet-Aire #JA-120S	Grinding Part.	99.9%	Submicron	Manuf. Guar.
pulse type-or equivalent				Air/Cloth=2.

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard

[4] Emission, if source operated without control (See Section V, Item 3)

[5] If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
#Residual Fuel Oil	2.9	2.9	18.0 MBTU/HR

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, lbs/hr

Fuel Analysis:

Percent Sulfur: 2.5 Percent Ash: .1

Density: 8.3 lbs/gal Typical Percent Nitrogen: .5

Heat Capacity: 18000 BTU/lb 148,070 BTU/gal

Other Fuel Contaminants (which may cause air pollution):

F. If applicable, indicate the percent of fuel used for space heating. Annual Average N/A Maximum

G. Indicate liquid or solid wastes generated and method of disposal.

Coal Pile Runoff - Channeled to settling pond.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 30/33/33/68 ft. Stack Diameter: 1.5/.8/.8/2.3 ft.

Gas Flow Rate: 2939/2490/2490/16800 ACFM Gas Exit Temperature: 400/200/200/Ambient °F.

Water Vapor Content: 5%/56%/56%/5% % Velocity: 27.7/76/76/66 FPS

SECTION IV: INCINERATOR INFORMATION

N/A

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste

Total Weight Incinerated (lbs/hr) Design Capacity (lbs/hr)

Approximate Number of Hours of Operation per day days/week

Manufacturer

Date Constructed Model No.

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (^oF)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner [ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight – show derivation.
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.,) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.).
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3, and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
7. An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

THIS SECTION NOT APPLICABLE

Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration

Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [ ] No

Contaminant	Rate or Concentration

What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

Explain method of determining D 3 above.

10. Stack Parameters

a. Height: ft. b. Diameter: ft.

c. Flow Rate: ACFM d. Temperature: °F

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy*: h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy**: h. Maintenance Costs:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above.

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space and operate within proposed levels:

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:
2. Efficiency*:
3. Capital Cost:
4. Life:
5. Operating Cost:
6. Energy:
7. Maintenance Cost:
8. Manufacturer:
9. Other locations where employed on similar processes:

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

* Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

* Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data NA

1. _____ no sites _____ TSP _____( ) SO^2* _____ Wind spd/dir

Period of monitoring ___/___/___ to ___/___/___
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? ____ Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? ____ Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 01 / 01 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Tampa (12842)

3. Upper air (mixing height) data obtained from (location) Tampa (12842)

4. Stability wind rose (STAR) data obtained from (location) _____

C. Computer Models Used

1. Industrial Source Complex (ISC) (modified to allow Modified? If yes, attach description.
2. sequential processing of 5 years of meteorological data) Modified? If yes, attach description.
3. _____ Modified? If yes, attach description.
4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	0.6 grams/sec
SO^2	6.4 grams/sec

E. Emission Data Used in Modeling – See Attachments A and E

Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

*Specify bubbler (B) or continuous (C).

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

Not applicable

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other comoetent relevant information describing the theory and application of the requested best available control technology.

ATTACHMENT A--DESCRIPTION OF PROPOSED FACILITY

The COMCO Port Sutton facility (see Figure A-1) will receive coal by rail and No. 6 fuel oil by barge. The coal will be ground, dried, and mixed with the oil to form a coal-oil mixture (COM). This mixture will be stored on site in heated storage tanks until it is barged to the user (see Figure A-2). Total coal handling will be approximately 131,000 tons per year; a description of the coal handling process and fugitive emissions can be found in Attachment B. Total production rate (coal and oil) will be 30 tons per hour.

Point sources of emissions will consist of:

1. Particulate from the baghouse servicing the initial coal crushing and handling process;
2. Particulate, SO_2, and other combustion products from the steam boiler for tank heating; and
3. Particulate, SO_2, and other combustion products from the grinding process sweep gas heater (coal dryer), which will be vented through a baghouse.

A summary of stack parameters and emissions is given in Table A-1; supporting calculations are presented in Attachment D.

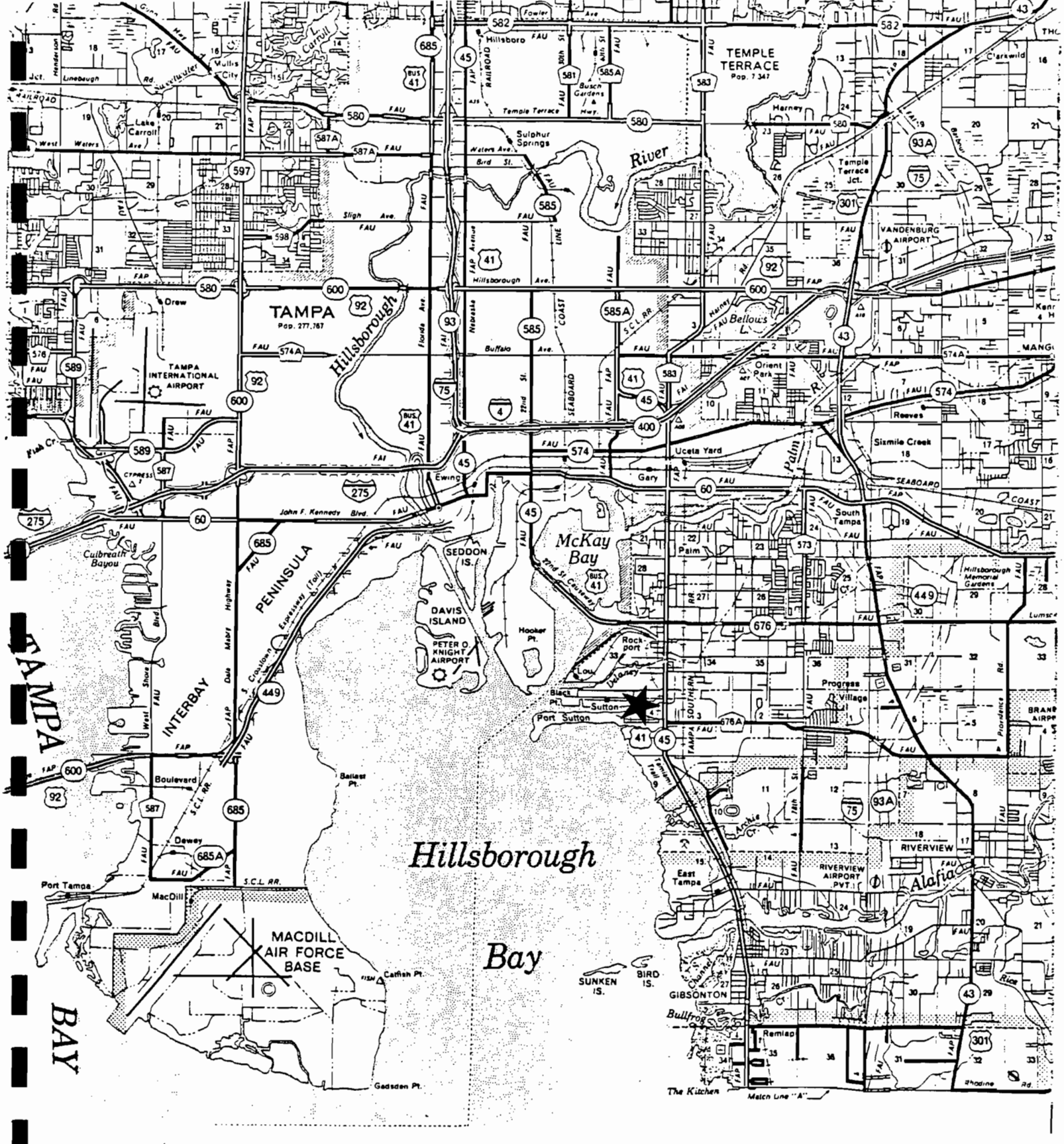
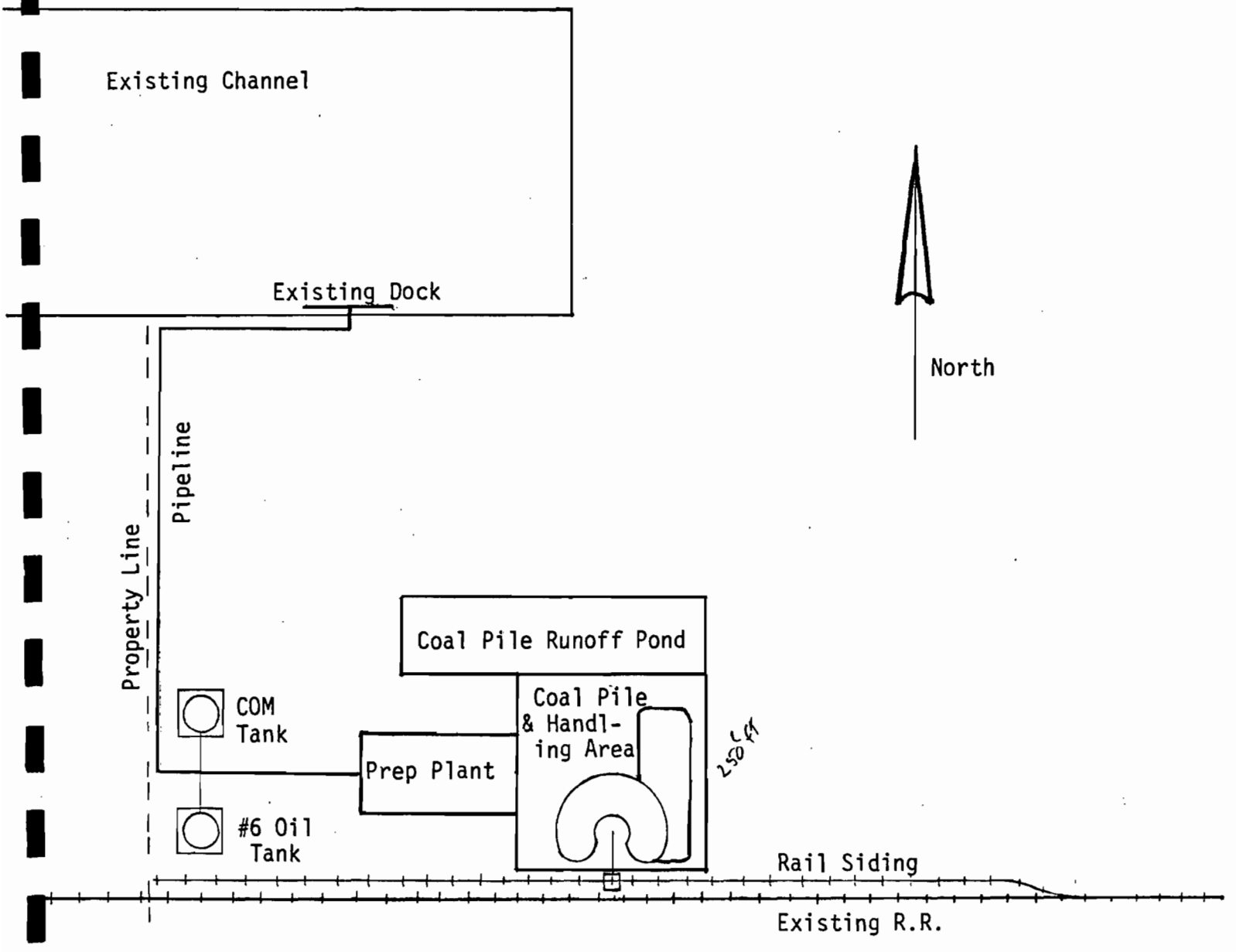


Figure A-1. General Location of Proposed Facility, COMCO, Port Sutton, Florida

Figure A-2

LAND BASED COM PREP PLANT

SITE LAYOUT



Scale = 1/2" ≈ 100'

Table A-1. Summary of Parameters for Point Sources at Proposed COMCO Facility, Port Sutton, Florida

	Steam Boiler (g/sec)	Steam Boiler (tons/yr)	Sweep Dryer (g/sec)	Sweep Dryer (tons/yr)	Coal Handling Baghouse (g/sec)	Coal Handling Baghouse (tons/yr)
Emissions						
SO_2 (2.5% S)	2.88	100.0	3.56	123.60	--	--
Particulate (2.5% S)	0.19	6.75	0.086	2.98	0.36	12.61
NO_X	--	14.45	--	17.87	--	--
CO	--	1.20	--	1.49	--	--
HC	--	0.24	--	0.30	--	--
Stack Parameters						
Height (m)	9.1		10.1		20.7	
Diameter (m)	0.46		0.25		0.71	
Velocity (m/s)	8.4		26.7		20.0	
Temperature (°K)	477		366 (2 identical stacks)		Ambient	

Sources: COMCO, Inc., 1981.
Environmental Science and Engineering, Inc., 1981.

ATTACHMENT B--COAL HANDLING PROCESS DESCRIPTION

The facility will receive coal by rail. Total coal throughput will be approximately 131,000 tons per year. Shipments will consist of 20 railcars, each containing 100 tons of coal. The cars will be unloaded by bottom hopper to an underground receiving hopper, and the coal will be conveyed to a radial stacker-conveyor for loading onto the storage pile. A single conveyor-to-conveyor transfer point will be encountered along the path to the coal pile. The conveyors, transfer point, and railcar unloader will all be unenclosed. The maximum capacity through the unloading sequence will be 250 tons per hour. Provisions will be made for water spray suppression of dust along the unloading path.

From the storage pile, the coal will be removed by front-end loaders, fed into a receiving hopper, and conveyed to the crusher. From the receiving hopper onward, all points are vented and ducted through a baghouse; thus, the only fugitive emissions after loading the coal onto the storage pile will result from wind erosion, vehicular traffic, and coal transfer by front-end loader. The projected hourly rate of coal unloading from the storage pile to the plant coal bunker is 60 tons per hour; the maximum daily rate is 1,440 tons per day.

Fugitive emission sources are identified in Table B-1, with maximum daily and annual throughput for each segment.

EMISSION FACTORS AND CONTROL EFFICIENCY

Potential (uncontrolled) emissions from the operation were estimated from the document titled "Technical Guidance for Control of Industrial Process Fugitive Particulate Emissions" (EPA-450/3-77-010, March 1977). Section 2.1.2 of the technical guidance document presents an uncontrolled emission factor for coal/hopper car unloading and barge loading of coal of 0.4 pound per ton. Section 2.1.1 of the document presents

Table B-1. Summary of Fugitive Dust Emissions from Coal Handling Operations, Land-Based COM Preparation Plant

Emission Source	Basic Emission Factor* (lb/ton)	Control Efficiency (%)	Annual Throughput (tons)	Maximum Daily Throughput (tons)	Annual Controlled Emissions (tons)	Maximum Daily Controlled Emissions (lbs)
Rail Car Dump	0.4	90	131,000	2,000	2.6	80
Transfer to Radial Conveyor	0.2	90	131,000	2,000	1.3	40
Pile Loading	0.2	90	131,000	2,000	1.3	40
Wind Erosion	0.014 lb/ton stored year	0	32,300	—	0.2	1
Vehicular Traffic	0.1	50	131,000	1,440	3.3	72
Reclaim (Loadout)	0.06	0	131,000	1,440	3.9	86
TOTAL					12.6	319

* Represents potential or uncontrolled emissions.

Sources: COMCO, Inc., 1981.
Environmental Science and Engineering, Inc., 1981.

transfer/conveying uncontrolled emission factors. For coal, a range from 0.04 to 0.96 pound per ton is given. The geometric mean or medium value from this range of 0.20 pound per ton was chosen as an average emission factor.

The emission factor for the storage pile loading operation, in which coal will be dropped, was assigned the value 0.2 pound per ton, the same as that for a conveyor transfer point.

Additional formulae are presented for loadout from piles, and vehicular traffic around and within storage piles. Using the recommended activity factor for these operations yields 0.06 pound per ton for loadout and 0.1 pound per ton for vehicular traffic. The emission factor formulae are given a reliability rating of D, indicating that they are supportable by limited test data and engineering judgment.

Fugitive emissions from the coal storage pile were estimated from information in "Source Assessment: Coal Storage Piles" (Blackwood, T.R., and Wachter, R.A., Monsanto Research Corporation produced for the Industrial Environmental Research Laboratory, U.S. Environmental Protection Agency, 1978, EPA-600/2-78-004K). This document reports the average emission factor for respirable particulate from a representative coal storage pile at 0.014 pound per year per ton of coal stored. It was assumed that the coal storage capacity at this plant was for a 90-day supply, or 25 percent of the total annual throughput.

The water spray dust suppression system was assumed to provide a 90-percent reduction in fugitive emissions, with respect to the potential or uncontrolled emission factor. This control efficiency was applied to all emission points up to and including pile loading. Emissions due to vehicular traffic in the storage pile area were assumed to be reduced one-half by watering when conditions warrant. To account

for worst-case conditions of material drying during storage, no control credit was assumed for wind erosion or for unloading from the pile.

These emission factors and control efficiencies are summarized in Table B-1.

EMISSIONS SUMMARY

Table B-1 shows the total fugitive emissions on both annual and maximum daily bases. The annual controlled emissions are 12.6 tons and maximum daily emissions are 319 pounds.

ATTACHMENT C--REGULATORY APPLICABILITY

The proposed Port Sutton site is located in an area designated as nonattainment for total suspended particulate (TSP) (FAC 17-2.13) (see Figure C-1) and for ozone. Thus, neither state nor federal PSD review for these pollutants are required. However, the source is subject to nonattainment review for TSP and volatile organic compounds (VOC) under FAC 17-2.17. Table C-1 shows that maximum allowable (i.e., controlled) emissions of particulate matter are less than 50 tons per year and 1,000 pounds per day. Emissions of VOC are also less than 100 pounds per hour and 50 tons per year (Table A-1). FAC 17-2.17(3) provides that a new source, which has an allowable emission less than these cutoff levels, shall be exempt from the provisions of 17-2.17(5) through (7) (pertaining to LAER, emissions offset, and new source allowance). A proposed source which is so exempted remains subject to NSPS (40 CFR Part 60) and NESHAPS (40 CFR Part 61), or any applicable emission limiting standard in 17-2.05, whichever is more restrictive.

Applicable NSPS are found in 40 CFR 60 Subpart Y for coal preparation plants. Because the processing capacity will exceed 200 tons per day, particulate emissions from the thermal drying operation are limited to 0.031 grain/dscf and 20 percent opacity. The coal storage and transfer operations are limited to 20 percent opacity. Attachment D shows that the design parameters for these operations will limit emissions to 0.02 grain/scf. The baghouses will be maintained to prevent visible emissions in excess of 20 percent opacity.

Tables A-1, C-1, and C-2 also show that potential emissions of sulfur dioxide and other attainment pollutants from the plant will not exceed 250 tons per year. "Coal cleaning plants" is one of the 28 PSD source categories named in 40 CFR 52.21 and 17.02(66). However, this category is not applicable to the proposed facility since no on-site coal-cleaning will be conducted. Therefore, because the proposed type facility is not one of the 28 source categories and will not emit greater than 250 tons per year for attainment pollutants, it is not a

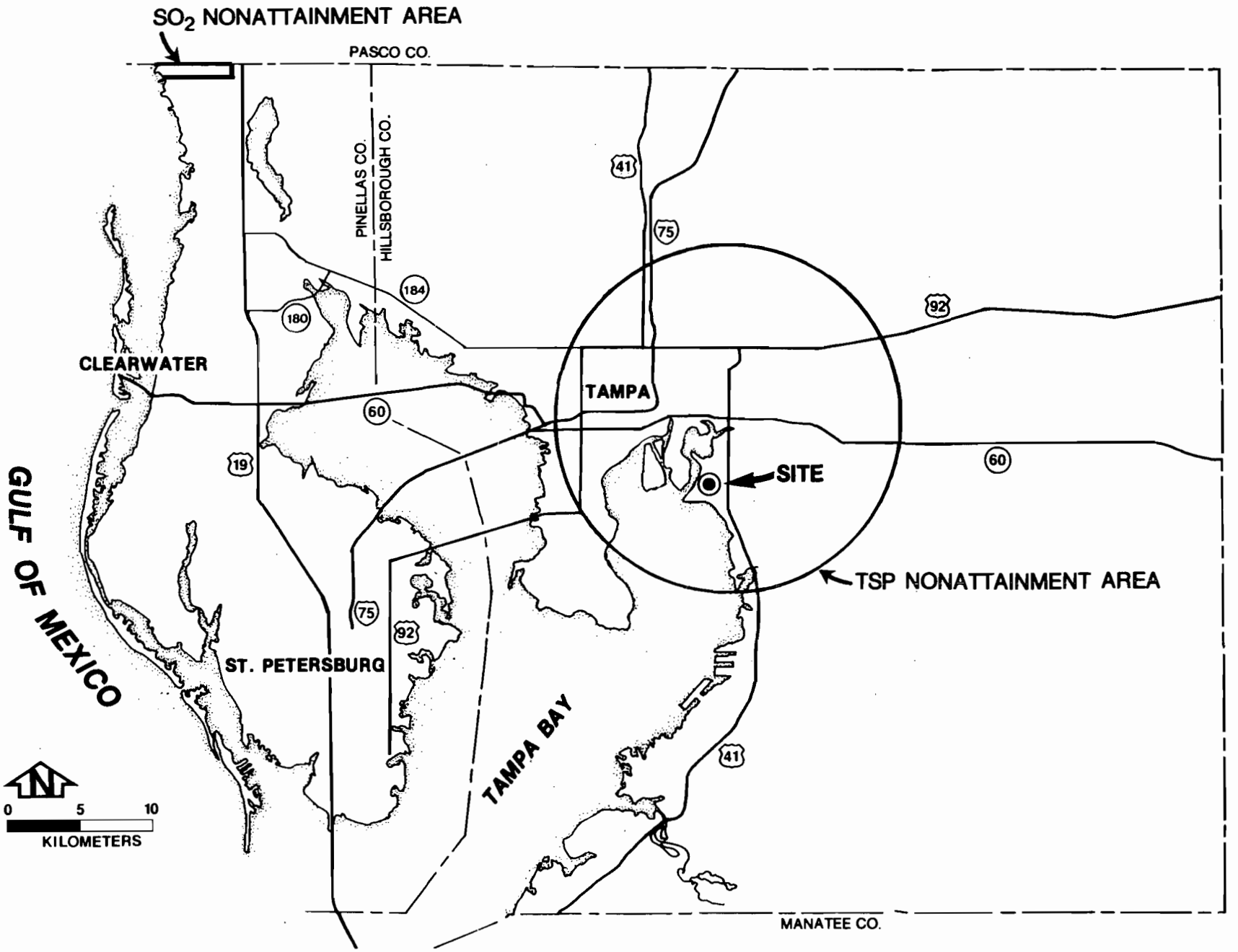


FIGURE C-1

LOCATION OF PROPOSED COM PLANT AND NEARBY NONATTAINMENT AREAS—COMCO, PORT SUTTON, FLORIDA

Table C-1. Summary of Emissions from Land-Based COM Plant, COMCO, Port Sutton, Florida

Source	Particulate Matter (lb/day)*	Particulate Matter (ton/yr)	Sulfur Dioxide (ton/yr)
Coal Crushing and Handling Baghouse	70	13	--
Sweep Dryer	16	3	124
Steam Boiler	37	7	100
Fugitive Emissions	319	13	--
TOTAL	442	36	224

* Based on train unloading 8 hours per day, and transfer from storage pile to crushing, drying, and mixing process 24 hours per day.

Sources: COMCO, Inc., 1981.
Environmental Science and Engineering, Inc., 1981.

Table C-2. Airborne Contaminant Emissions

Contaminant	Emissions* Maximum (lb/hr)	Emissions* Actual (tons/yr)	Allowed Emission Rate per FAC Ch. 17-2	Allowable Emissions (lb/hr)	Potential Emissions (lb/hr)	Potential Emissions (ton/yr)
Fugitive Particulate	27	13	41.9 lb/hr [17-2.05(2) Table I]	41.9	210†	63†
Particulate (Crushing Process Baghouse)	2.9	13	37.5 lb/hr combined emissions [17-2.05(2) Table I]	37.5	2,900**	13,000**
Particulate (Sweep Dryer)	0.7	3			700**	3,000**
Particulate (Steam Boiler)	1.5	7	20% opacity [17-2.05(6) Table II]	--	1.5	7
SO_2 (Sweep Dryer)	28	124	--	--	28	124
SO_2 (Steam Boiler)	23	100	Latest technology [17-2.03(1)]	--	23	100
NO_2	3.3	14.45	--	--	3.3	14.45
CO	0.3	1.20	--	--	0.3	1.20
HC	0.05	0.24	--	--	0.05	0.24

* For basis, see Attachments B and D.
† See Section B, assumes 8 hours per day loading to pile and 24 hours per day erosion, traffic, and reclaim.
**Assumes baghouse is 99.9% efficient.

major emitting facility for attainment pollutants (i.e., pollutants other than particulate matter and VOC).

The only SO_2 nonattainment area within 50 kilometers is in the northern part of Pinellas County, approximately 47 kilometers northwest of the proposed site. Therefore, the Port Sutton site is within the "area of influence" of this nonattainment area, and nonattainment review is limited to demonstration of nonsignificant impact on SO_2 nonattainment areas. Results of analysis using the ISC model indicate that the highest, second-highest concentration impacts on this area are 12.6 ug/m, 3-hour, and 2.6 ug/m, 24-hour; both of which are below the significance levels of 25 ug/m^3 and 5 ug/m^3, respectively. The projected annual average SO_2 concentration due to the proposed source at the nonattainment area is 0.1 ug/m^3 (significance level is 1.0 ug/m^3). Copies of the model output are provided in Attachment E.

ATTACHMENT D--COMCO EMISSIONS CALCULATIONS

STEAM BOILER FOR TANK HEATING

2.5% S Oil

55 gal/hr

API 10.5° = 8.3 lb/gal

55 gal/hr x 8.3 lb/gal x 0.025 x 2

= 22.8 lb/hr SO_2

= 2.88 g/sec

22.8 lb/hr x 8,760 hr/yr ÷ 2,000

= 100.0 tons/yr SO_2

Use AP-42 factors, industrial and commercial boilers

Residual oil

Particulate: $lb/10^3$ gal = 10(S) + 3 = 10(2.5) + 3

= 28 $lb/10^3$ gal

NO_x: 60 $lb/10^3$ gal

CO: 5 $lb/10^3$ gal

HC: 1 $lb/10^3$ gal

Particulate: 55 gal/hr x 28 ÷ 1,000 = 1.54 lb/hr

= 0.19 g/sec

= 6.75 tons/yr

NO_x: 55 x 60 ÷ 1,000 = 3.3 lb/hr = 0.42 g/sec = 14.45 tons/yr

CO: 55 x 5 ÷ 1,000 = 0.28 lb/hr = 1.20 tons/yr

HC: 55 x 1 ÷ 1,000 = 0.055 lb/hr = 0.24 tons/yr

SWEEP DRYER

2 units at 5×10^6 Btu/hr = 10×10^6 Btu/hr

10×10^6 Btu/hr ÷ 148×10^3 Btu/gal = 68 gal/hr

2.5% S oil

68 gal/hr x 8.3 x 0.025 x 2

= 28.2 lb/hr SO_2

= 3.56 g/sec

= 123.60 tons/yr

Particulate:

2 units x (0.02 gr/SCFM) x (2,000 SCFM) x (0.0648 gr/g) x 1/60 = 0.086 g/s

0.86 g/sec x 3,600 sec/hr ÷ 454 g/lb = 0.68 lb/hr

0.68 lb/hr x 8,760 hr/yr ÷ 2,000 = 2.98 tons/yr

NO_x: 68 x 60 ÷ 1,000 = 4.08 lb/hr = 17.87 tons/yr

CO: 68 x 5 ÷ 1,000 = 0.34 lb/hr = 1.49 tons/yr

HC: 68 x 1 ÷ 1,000 = 0.068 lb/hr = 0.30 tons/yr

COAL HANDLING BAGHOUSE

(0.02 gr/SCFM) x (16,800 SCFM) x (0.0648 gr/g) x 1/60

= 0.36 g/s = 2.9 lb/hr = 12.5 tons/yr

ATTACHMENT E--COMPUTER OUTPUT

```
 ***  IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1   COMCO                ***

CALCULATE (CONCENTRATION=1,DEPOSITION=2)                                  ISW(1) =   1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)                   ISW(2) =   1
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) =   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) =   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) =   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 (RURAL=0,URBAN MODE 1=1,URBAN MODE 2=2)               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) =   1

NUMBER OF INPUT SOURCES                                                  NSOURC =   2
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 =   0
NUMBER OF Y (THETA) GRID VALUES                                          NYPNTS =   0
NUMBER OF DISCRETE RECEPTORS                                             NXWYPT =   7
SOURCE EMISSION RATE UNITS CONVERSION FACTOR                                 TK =.10000E 07
ENTRAINMENT COEFFICIENT FOR UNSTABLE ATMOSPHERE                           BETA1 =0.600
ENTRAINMENT COEFFICIENT FOR STABLE ATMOSPHERE                             BETA2 =0.600
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED     ZR =    7.00   METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA                                IMET =   9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION DECAY =0.000000E 00
SURFACE STATION NO.                                                        ISS = 12842
YEAR OF SURFACE DATA                                                       ISY = 70
UPPER AIR STATION NO.                                                      IUS = 12842
YEAR OF UPPER AIR DATA                                                     IUY = 70
ALLOCATED DATA STORAGE                                                   LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN                               MIMIT =   535 WORDS
```

*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

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

1111111111 1111111111 1111111111 1111111111 1111111111
1111111111 1111111111 1111111111 1111111111 1111111111
1111111111 1111111111 1111111111 1111111111 1111111111
1111111111 1111111111 1111111111 1111111111 1111111111
1111111111 1111111111 1111111111 1111111111 1111111111
1111111111 1111111111 1111111111 1111111111 1111111111
1111111111 1111111111 1111111111 1111111111 1111111111
1111111111 111111

*** 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	.10000E 00	.10000E 00	.10000E 00	.10000E 00	.10000E 00	.10000E 00
B	.15000E 00	.15000E 00	.15000E 00	.15000E 00	.15000E 00	.15000E 00
C	.20000E 00	.20000E 00	.20000E 00	.20000E 00	.20000E 00	.20000E 00
D	.25000E 00	.25000E 00	.25000E 00	.25000E 00	.25000E 00	.25000E 00
E	.30000E 00	.30000E 00	.30000E 00	.30000E 00	.30000E 00	.30000E 00
F	.30000E 00	.30000E 00	.30000E 00	.30000E 00	.30000E 00	.30000E 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

*** X,Y COORDINATES OF DISCRETE RECEPTORS ***
(METERS)

(320000.,3112000), (325000.,3112000), (327000.,3112000), (329000.,3117500), (331000.,3175000),
(341000.,3165000), (342500.,3174000), (

*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

SOURCE # 1---STEAM BOILER
SOURCE # 2---SWEEP DRYER

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (G/S) TYPE=2 (G/S) *PER M**2	X (M)	Y (M)	BASE ELEV. (M)	HEIGHT (M)	TEMP. TYPE=0 (DEG.K) VERT.DIM. TYPE=1 (M)	EXIT VEL. TYPE=0 (M/S) HORZ.DIM. TYPE=1,2 (M)	DIAM. TYPE=0 (M)	BLDG. HEIGHT TYPE=0 (M)	BLDG. LENGTH TYPE=0 (M)	BLDG. WIDTH TYPE=0 (M)
1	0	0	0	2.88	361400	3086900	0.0	9.10	477.00	8.40	0.46	0.00	0.00	0.00
2	0	0	0	3.56	361400	3086900	0.0	10.10	366.00	26.70	0.25	0.00	0.00	0.00

'N'-DAY
365 DAYS
SGROUP# 1
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

YEAR 1970
* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	- X -	- Y -	CON.	- X -	- Y -	CON.
320000.0	3112000.0	0.1	325000.0	3112000.0	0.1	327000.0	3112000.0	0.1
329000.0	3117500.0	0.0	331000.0	3175000.0	0.0	341000.0	3165000.0	0.0
342500.0	3174000.0	0.0						

2ND HIGH
3-HR
SGROUP# 1
YEAR 1970
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	12.56244	(311, 2)	325000.0	3112000.0	6.98743	(173, 2)
327000.0	3112000.0	4.30250	(356, 8)	329000.0	3117500.0	7.53913	(356, 2)
331000.0	3175000.0	3.44831	(219, 1)	341000.0	3165000.0	2.70842	(294, 1)
342500.0	3174000.0	4.94810	(294, 1)				

2ND HIGH
24-HR
SGROUP# 1
YEAR 1970
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

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

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	2.59917	(311, 1)	325000.0	3112000.0	0.95780	(29, 1)
327000.0	3112000.0	0.71206	(183, 1)	329000.0	3117500.0	1.39147	(356, 1)
331000.0	3175000.0	0.43246	(219, 1)	341000.0	3165000.0	0.36160	(294, 1)
342500.0	3174000.0	0.62139	(116, 1)				

```
*N*-DAY
365 DAYS
SGROUP#  1
***  IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1   COMCO              ***

YEAR 1971
* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER)     *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *
   - X -      - Y -          CON.       - X -      - Y -          CON.       - X -      - Y -          CON.
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  320000.0  3112000.0           0.1    325000.0  3112000.0           0.1    327000.0  3112000.0           0.1
  329000.0  3117500.0           0.1    331000.0  3175000.0           0.0    341000.0  3165000.0           0.0
  342500.0  3174000.0           0.0
```

2ND HIGH
3-HR
SGROUP# 1
YEAR 1971
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	6.90687	(281, 8)	325000.0	3112000.0	8.06201	(287, 7)
327000.0	3112000.0	7.93893	(339, 8)	329000.0	3117500.0	7.80758	(170, 1)
331000.0	3175000.0	2.11519	(113, 2)	341000.0	3165000.0	2.00426	(331, 8)
342500.0	3174000.0	2.38841	(31, 8)				

2ND HIGH
24-HR
SGROUP# 1
YEAR 1971
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

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

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	1.11170	(219, 1)	325000.0	3112000.0	1.11399	(184, 1)
327000.0	3112000.0	1.14635	(104, 1)	329000.0	3117500.0	2.15009	(104, 1)
331000.0	3175000.0	0.29388	(288, 1)	341000.0	3165000.0	0.25054	(331, 1)
342500.0	3174000.0	0.39879	(60, 1)				

N-DAY
366 DAYS
SGROUP# 1
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

YEAR 1972
* 366-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	- X -	- Y -	CON.	- X -	- Y -	CON.
320000.0	3112000.0	0.1	325000.0	3112000.0	0.1	327000.0	3112000.0	0.1
329000.0	3117500.0	0.0	331000.0	3175000.0	0.0	341000.0	3165000.0	0.0
342500.0	3174000.0	0.0						

2ND HIGH
3-HR
SGROUP# 1
YEAR 1972
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	7.36443	(293, 1)	325000.0	3112000.0	7.27642	(293, 3)
327000.0	3112000.0	6.99375	(323, 7)	329000.0	3117500.0	12.30391	(58, 2)
331000.0	3175000.0	2.32602	(136, 2)	341000.0	3165000.0	2.34981	(48, 8)
342500.0	3174000.0	1.87849	(309, 3)				

2ND HIGH
24-HR
SGROUP# 1
YEAR 1972
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

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

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	1.27177	(25, 1)	325000.0	3112000.0	1.74737	(323, 1)
327000.0	3112000.0	1.02931	(323, 1)	329000.0	3117500.0	1.53799	(58, 1)
331000.0	3175000.0	0.30237	(212, 1)	341000.0	3165000.0	0.29373	(48, 1)
342500.0	3174000.0	0.23854	(10, 1)				

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N-DAY
365 DAYS
SGROUP# 1
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

YEAR 1973
* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	- X -	- Y -	CON.	- X -	- Y -	CON.
320000.0	3112000.0	0.1	325000.0	3112000.0	0.1	327000.0	3112000.0	0.1
329000.0	3117500.0	0.0	331000.0	3175000.0	0.0	341000.0	3165000.0	0.0
342500.0	3174000.0	0.0						

2ND HIGH
3-HR
SGROUP# 1
YEAR 1973
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	7.47117	(312, 2)	325000.0	3112000.0	4.93286	(313, 2)
327000.0	3112000.0	9.00879	(66, 2)	329000.0	3117500.0	5.03481	(114, 1)
331000.0	3175000.0	2.17068	(209, 1)	341000.0	3165000.0	1.51216	(313, 2)
342500.0	3174000.0	2.97094	(170, 8)				

2ND HIGH
24-HR
SGROUP# 1
YEAR 1973
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

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

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	0.94383	(312, 1)	325000.0	3112000.0	0.61661	(313, 1)
327000.0	3112000.0	1.46590	(255, 1)	329000.0	3117500.0	0.94078	(199, 1)
331000.0	3175000.0	0.30155	(150, 1)	341000.0	3165000.0	0.26672	(213, 1)
342500.0	3174000.0	0.32049	(364, 1)				

```
*N*-DAY
365 DAYS
SGROUP#  1
***  IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1   COMCO              ***

YEAR 1974
* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER)     *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *
   - X -      - Y -         CON.       - X -      - Y -         CON.       - X -      - Y -         CON.
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  320000.0  3112000.0          0.1    325000.0  3112000.0          0.1    327000.0  3112000.0          0.1
  329000.0  3117500.0          0.0    331000.0  3175000.0          0.0    341000.0  3165000.0          0.0
  342500.0  3174000.0          0.0
```

2ND HIGH
3-HR
SGROUP# 1
YEAR 1974
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	7.86297	(359, 2)	325000.0	3112000.0	9.35813	(45, 2)
327000.0	3112000.0	6.81059	(150, 1)	329000.0	3117500.0	4.94301	(33, 2)
331000.0	3175000.0	4.21604	(46, 1)	341000.0	3165000.0	2.34989	(351, 2)
342500.0	3174000.0	2.95137	(173, 1)				

2ND HIGH
24-HR
SGROUP# 1
YEAR 1974
*** IMPACTS ON PINELLAS SO2 NONATTAINMENT AND NORTHWARD CLASS1 COMCO ***

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

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
320000.0	3112000.0	1.23110	(329, 1)	325000.0	3112000.0	1.32341	(104, 1)
327000.0	3112000.0	0.99995	(316, 1)	329000.0	3117500.0	0.62266	(106, 1)
331000.0	3175000.0	0.52702	(46, 1)	341000.0	3165000.0	0.32112	(152, 1)
342500.0	3174000.0	0.55110	(172, 1)				

COMPOSITE HIGHEST, SECOND-HIGHEST 3-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

- X -	- Y -	CONC. (UG/CU M)	- X -	- Y -	CONC. (UG/CU M)
320000.0	3112000.0	12.6	325000.0	3112000.0	9.4
327000.0	3112000.0	9.0	329000.0	3117500.0	12.3
331000.0	3175000.0	4.2	341000.0	3165000.0	2.7
342500.0	3174000.0	4.9			

COMPOSITE HIGHEST, SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

- X -	- Y -	CONC. (UG/CU M)	- X -	- Y -	CONC. (UG/CU M)
320000.0	3112000.0	2.6	325000.0	3112000.0	1.7
327000.0	3112000.0	1.5	329000.0	3117500.0	2.2
331000.0	3175000.0	0.5	341000.0	3165000.0	0.4
342500.0	3174000.0	0.6			

Attachment F-Additional Information

COMCO
Specialists in composite fuels

One Oliver Plaza
Pittsburgh, Pennsylvania 15222
(412) 565-3233

February 16, 1981

In my capacity as General Manager of COMCO, a company formed by subsidiaries of Dravo Corporation, Florida Power Corporation, and A. T. Massey Coal Co., Inc., I hereby authorize S. Frank Kirkconnell, COMCO's representative for purposes of environmental permit applications to the State of Florida. He has full authority to act in behalf of COMCO on the above stated matters.

Sincerely,

Frederick R. Sell

Frederick R. Sell
General Manager

JWC:js

Mikro-Pulsaire Dust Collector For Maximum Dust Recovery

Mikro-Pulsaire

The Mikro-Pulsaire dry filter collector combines high dust collection efficiency with very low maintenance. The unit is fully automatic and self cleaning. The unique design of the Mikro-Pulsaire has eliminated all moving parts thereby contributing to minimum maintenance and maximum efficiency of operation. All controls for the Mikro-Pulsaire are located on the outside of the unit.

Reverse Jet Operation

Basically the Mikro-Pulsaire consists of a series of cylindrical filter elements enclosed in a rugged, dust-tight fabricated metal housing. The contaminated, dust-laden air enters the housing through the hopper inlet. The dust particles accumulate on the filter elements. Periodically a momentary jet of high-pressure air is "pulsed" through a uniquely designed venturi nozzle located above each filter cylinder. The primary high-pressure jet pumps secondary air as a function of the jet pump method thereby producing a "reverse-flow" of air which cleans the filter cylinders. Continuous flow of air through the Mikro-Pulsaire is maintained at all times since only a small part of the filter element is cleaned at any given time. The air jets are controlled by diaphragm valves which are activated by solenoid pilot valves and a timer.

Unique Features

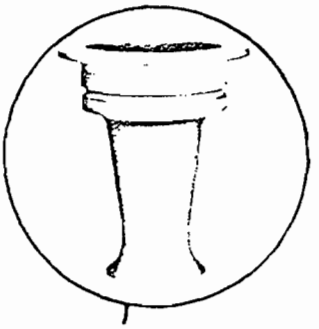
- High Dust Collection Efficiency . . . 99.9%
- Heavy Duty Construction . . . Minimum 14 Gauge
- No Internal Moving Parts
- Economical Installation . . . All Units Pre-wired
- Handles Dust Streams to 425° Fahrenheit. High temperature filter elements of DuPont "Nomex"® allows operation above most acid dew points. When extra resistance to chemicals is required DuPont Teflon® is also available for use in the filter elements.
- Installations World Wide . . . Over 60,000 installations throughout the world.
- Can be Used by Any Industry Having a Dry Dust Problem.

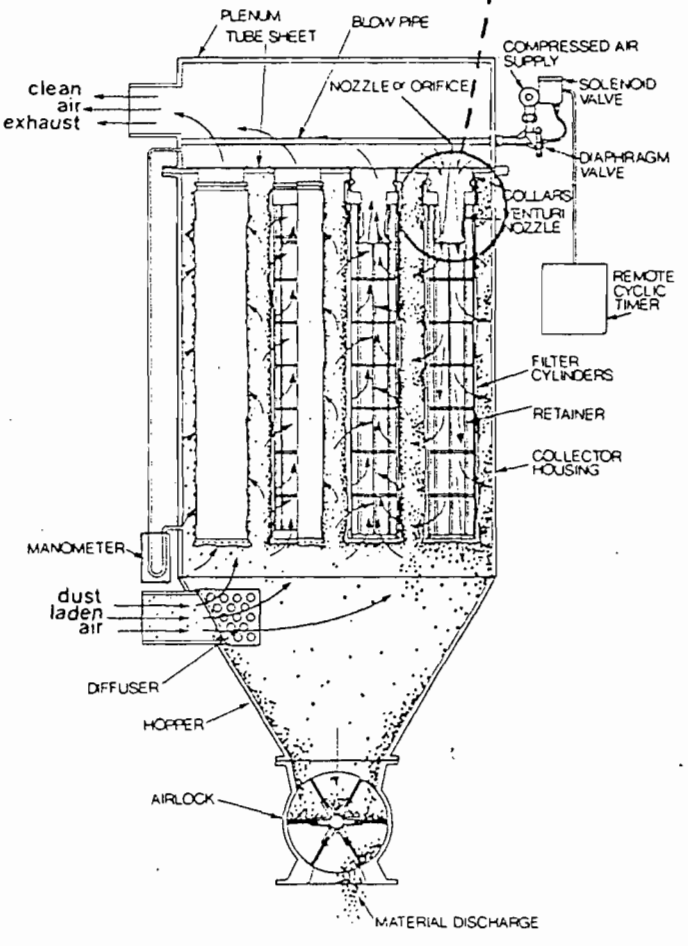
AVAILABILITY — All Mikro-Pulsaires can be supplied in three styles:

A Style — Plenum only
B Style — Plenum and Housing
C Style — Plenum, Housing and Hopper

Original MikroPul Venturi

This venturi provides maximum efficiency to the filter media and is standard equipment of all Mikro-Pulsaire dust collectors.



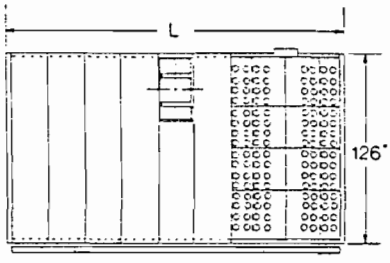


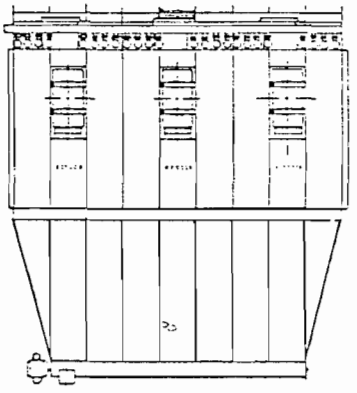
Schematic diagram showing the flow of dust and air and the arrangement of filter cylinders in the Mikro-Pulsaire Dust Collector.

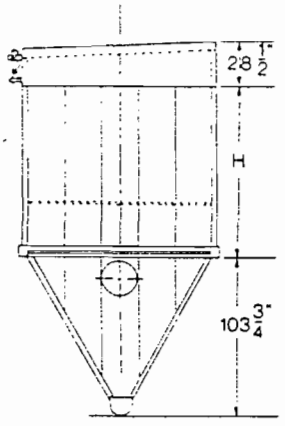
MEMBER AGCI

Mikro-Pulsaire is originated and manufactured solely by MikroPul Corporation.

Dust Collectors

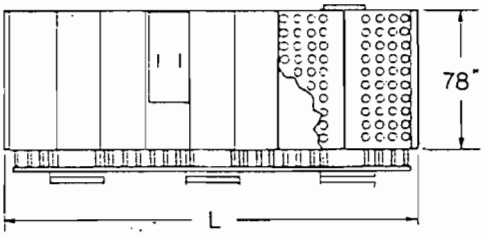


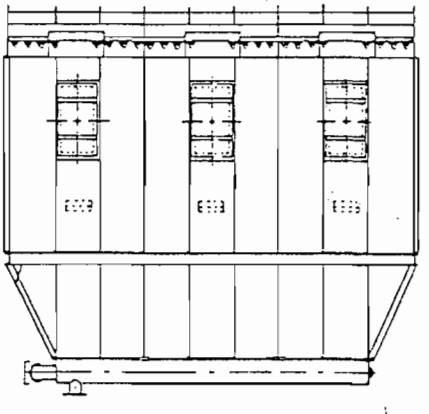


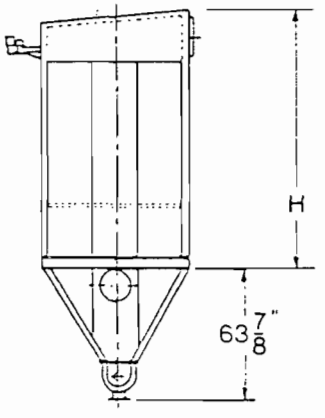


Model K Specifications

	8 FT. FILTER BAGS					10 FT. FILTER BAGS				
MODEL	128K-8	256K-8	384K-8	512K-8	640K-8	128K-10	256K-10	384K-10	512K-10	640K-10
NUMBER OF FILTER TUBES	128	256	384	512	640	128	256	384	512	640
FILTER AREA FT.²	1206	2412	8617	4823	6029	1508	3016	4524	6032	7540
APPROX. WT. IN LBS.	6700	14500	19700	25000	30200	10000	16700	22800	28900	35000
DIM. "L"	6'6"	12'6"	18'6"	24'6"	30'6"	6'6"	12'6"	18'6"	24'6"	30'6"
DIM. "H"	9'5⅛"	9'5⅛"	9'5⅛"	9'5⅛"	9'5⅛"	11'5¼"	11'5¼"	11'5¼"	11'5¼"	11'5¼"







Model 80-F Specifications

	8 FT. FILTER BAGS					10 FT. FILTER BAGS				
MODEL	80F2	80F3	80F4	80F5	80F6	80F2-10	80F3-10	80F4-10	80F5-10	80F6-10
NUMBER OF FILTER TUBES	160	240	320	400	480	160	240	320	400	480
FILTER AREA FT.²	1508	2262	3016	3770	4524	1885	2827	3770	4712	5655
APPROX. WT. IN LBS.	6700	8900	11500	14400	17800	8600	11400	14600	18000	21600
DIM. "H"	11'7"	11'7"	11'7"	11'7"	11'7"	13'8"	13'8"	13'8"	13'8"	13'8"
DIM. "L"	12'6"	18'6"	24'6"	30'6"	36'6"	12'6"	18'6"	24'6"	30'6"	36'6"

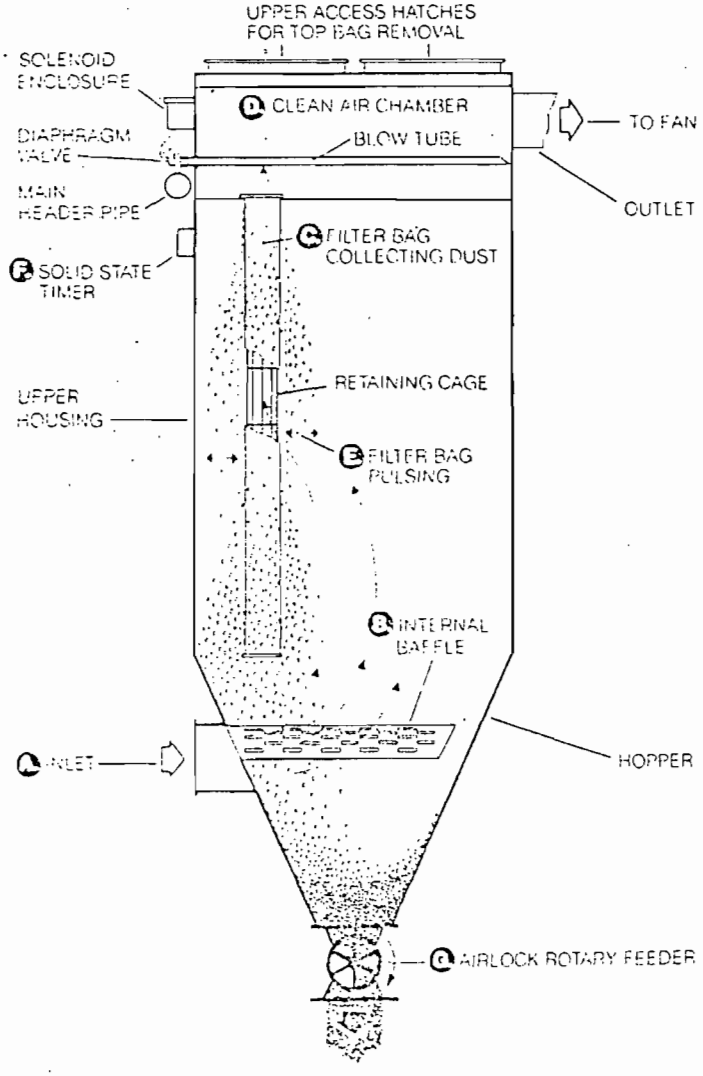
Jet-Aire

Continuous Duty, Pulse Jet Modular Fabric Filter Collectors

Very flexible in design and application, Jet-Aire dust collectors are engineered to meet the varying air pollution control requirements of industry. Ruggedly built for lasting quality, these Griffin units are easy to install, easy to operate and easy to maintain. Capacities range from 715 to 12,874 square feet of cloth area. Larger capacities are available by adding additional modules.

Among the major features are

- 99.9% Plus Efficiency
- Automatic, Continuous Operation
- No Internal Moving Parts
- Bags Installed
- Pre-Wired and Pre-Tested
- Easy Bag Replacement



A. Dust laden air enters the collector through the hopper inlet or the housing section.

B. This dirty air is distributed within the housing by the internal baffle, which reduces air velocity and disperses the air uniformly throughout the housing. Heavier particles are separated from the airstream to protect the bags from abrasion.

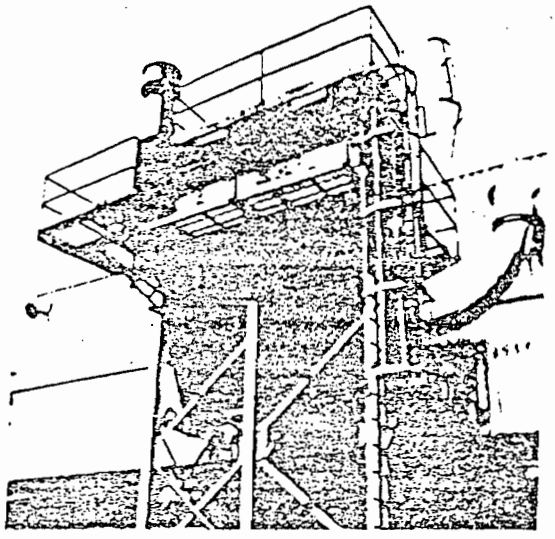
C. The lighter, airborne particles are collected on the outside surface of the felt bags.

D. Clean air, 99.9% + pure, goes to clean air chamber and is exhausted through the outlet.

E. The periodic pulsing of the high pressure air removes the accumulated dust on the bags.

F. Cleaning frequency and duration are adjustable by solid state timers.

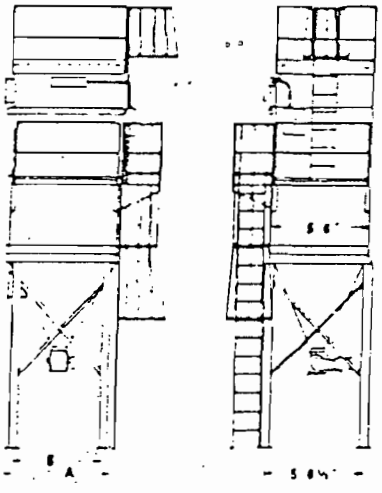
G. The dust falls into the hopper and is removed by screw conveyor and airlock (or airlock alone.)



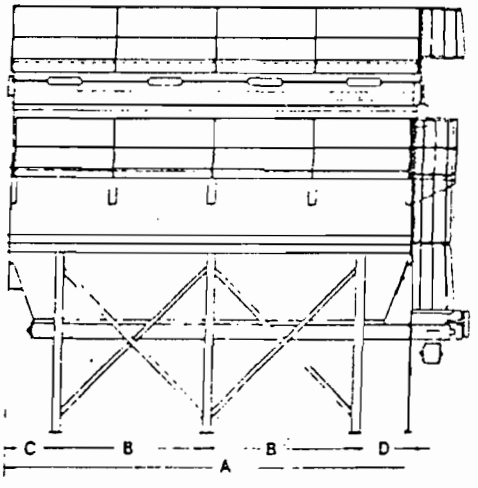
Single Width Modular Units

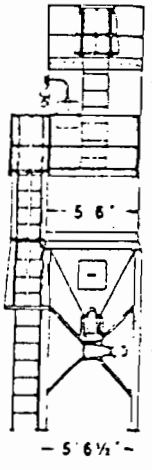
Utilizing the basic Jet-Aire modular construction, the "S" series contains 15 standard models, with cloth areas ranging from 715 square feet (80 bags) to 5364 square feet (600 bags). All units are designed to operate on ± 18 inches of W.C. and at 280 °F maximum temperature. All collectors are factory assembled, pre-wired and provided with 16-ounce polyester felt filter bags.

Models 80S through 160S are supplied with a pyramidal hopper with airlock feeder. Models 200S through 600S have a continuous hopper, screw conveyor and airlock feeder. Specifications for each standard unit are listed in the chart at the bottom of the page.



JA-80S through JA-160S



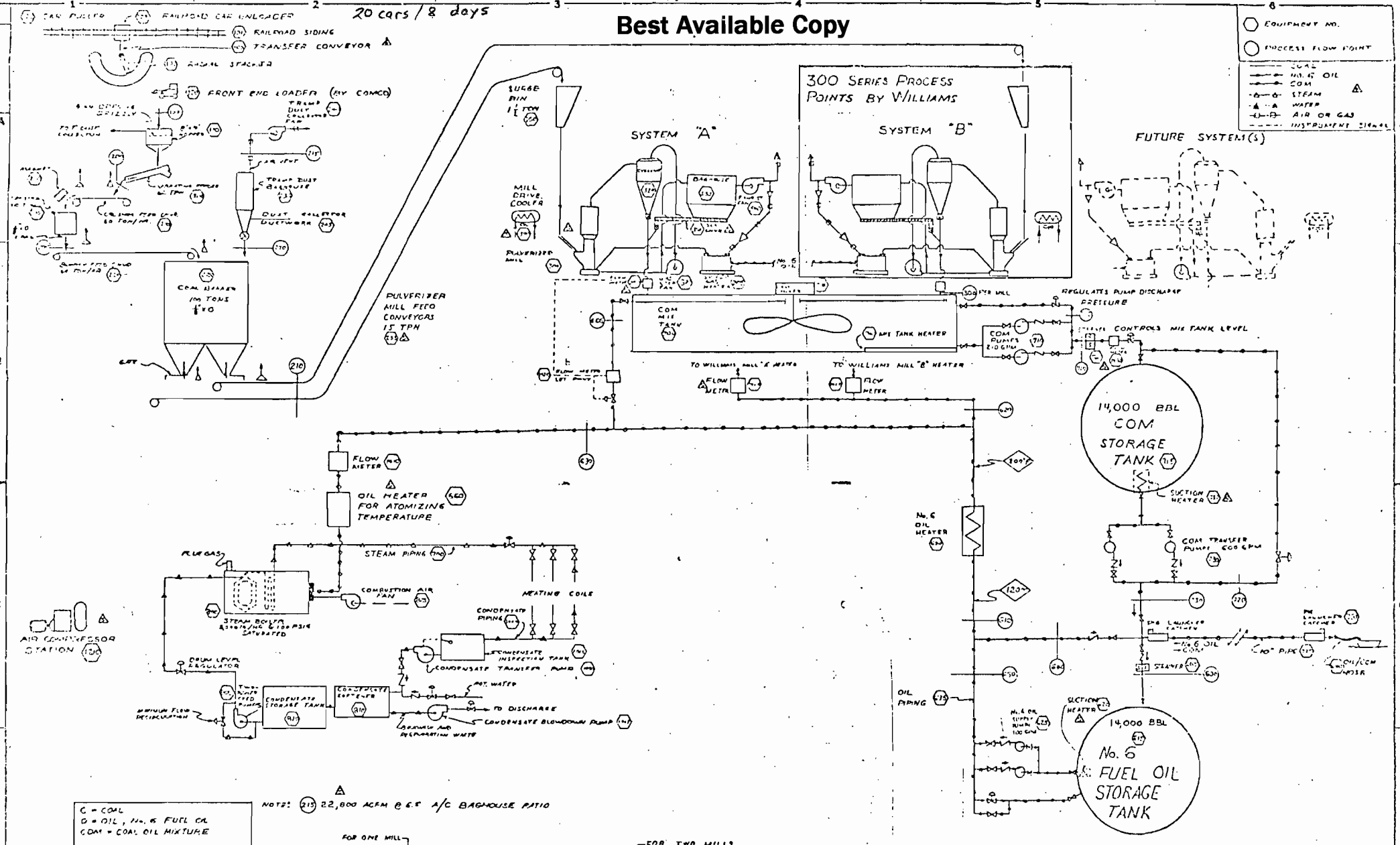


JA-200S through JA-600S

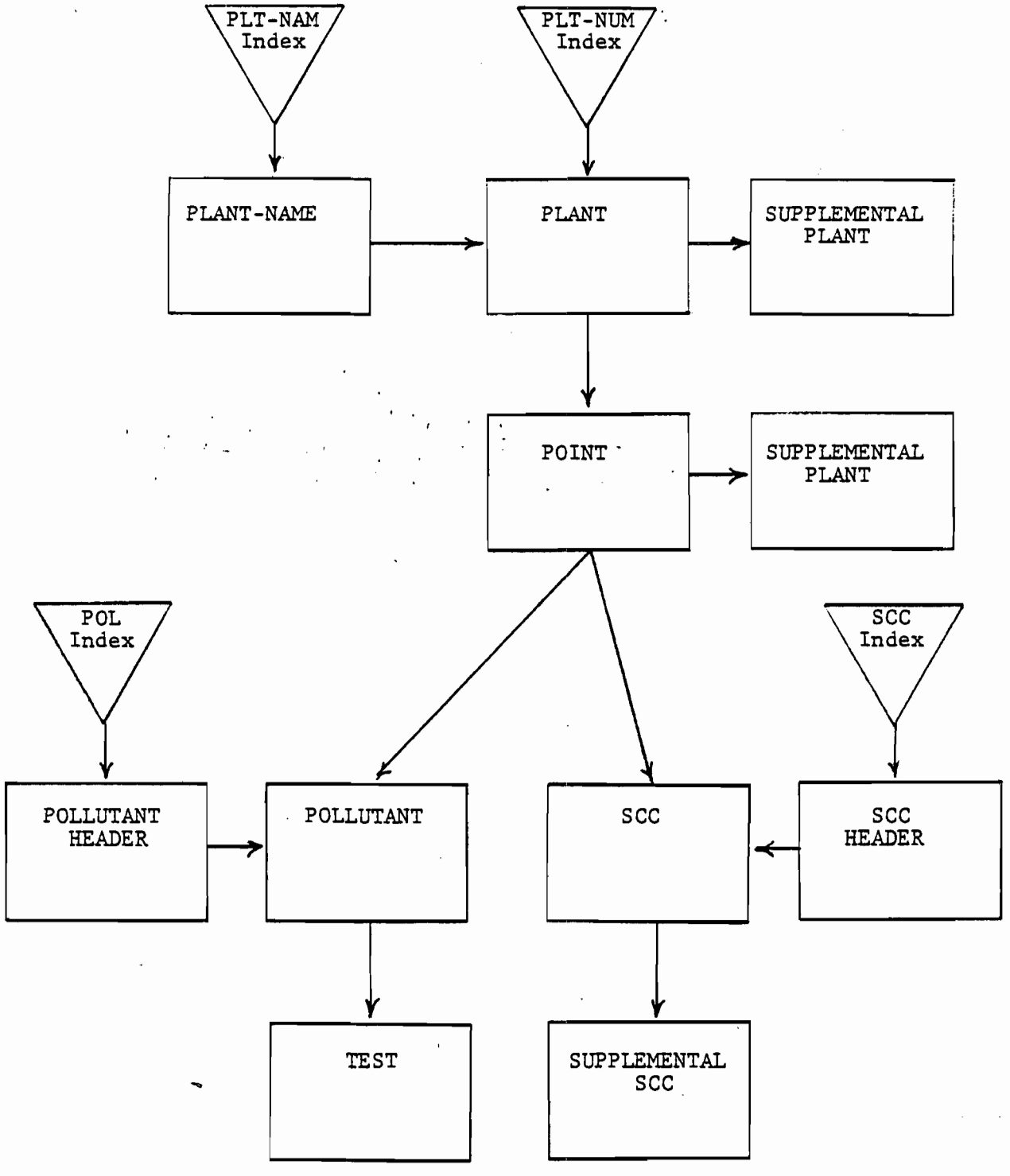
Single Width "S" Models—Specifications

Model No.	No. of Filter Bags	Cloth Area Sq. Ft.	No. of Manifolds	No. of Rows of Bags	No. of Columns	Length of Screw Conveyor	Dimensions A	B	C	D	Pressure Air Required*	Weight in Lbs. Unit	Support Steel	Total Weight
JA-80S	1	80	715	8	2	4	N.A.	4'-6	4'-0	N.A.	N.A.	7.2	4200	1000	900
JA-100S	1	100	894	10	2	4	N.A.	5'-0	5'-0	N.A.	N.A.	9.0	4400	1100	1100
JA-120S	1	120	1073	12	2	4	N.A.	6'-0	5'-0	N.A.	N.A.	10.8	4600	1200	1200
JA-160S	1	160	1430	16	2	4	N.A.	8'-0	7'-0	N.A.	N.A.	14.4	5600	1400	1300
JA-200S	2	200	1788	20	4	4	10'-0	10'-6	9'-0	0'-6	0'-11	18.0	6600	1450	1400
JA-240S	2	240	2146	24	4	4	15'-0	12'-6	9'-0	1'-6	4'-11	21.6	7600	1450	1500
JA-280S	2	280	2503	28	4	4	15'-0	14'-6	9'-0	2'-6	3'-11	25.2	8600	1450	1600
JA-320S	2	320	2851	32	4	6	20'-0	16'-6	8'-0	0'-0	4'-5	28.8	9600	2305	1700
JA-360S	3	360	3218	36	6	6	20'-0	18'-6	9'-0	0'-6	2'-11	32.4	10600	2305	1800
JA-400S	4	400	3576	40	8	6	20'-0	20'-6	9'-0	1'-0	1'-5	36.0	11600	2305	1900
JA-440S	4	440	3934	44	8	6	25'-0	22'-6	9'-0	2'-0	5'-5	39.6	12600	2305	2000
JA-480S	4	480	4291	48	8	6	25'-0	24'-6	9'-0	3'-0	4'-5	43.2	13600	2305	2100
JA-520S	4	520	4649	52	8	8	30'-0	26'-6	8'-0	1'-0	5'-5	46.8	14600	3160	2200
JA-560S	4	560	5006	56	8	8	30'-0	28'-6	9'-0	0'-6	2'-11	50.4	15600	3160	2300
JA-600S	5	600	5364	60	10	8	30'-0	30'-6	9'-0	1'-6	1'-11	54.0	16600	3160	2400

*FACFM @ 80-100 PSIG



APIS Data Base Schema Diagram



$$\left(68\ \text{gal/hr}\right)\left(6.3\ \#/\text{gal}\right)\left(.025\ \#S/\#\text{fuel}\right)\left(\frac{2\ \#SO_2}{\#S}\right)$$

$28.22\ \#/\text{hr}\ SO_2$

123.26