Estech

Name	Add.	Phone
Margaret Elliott	DER/Tall.	904/488-0130
Bruce May	Holland's Knight	904/224-7000
Rob Rhodes	"	"
Joe Davis	Estech Inc.	813/533 7164 ~~585 8484~~
Davi Hirsch	Estech, Inc.	312-571-6332
Mark Zillweg	OGC/DER	(904) 488-9730
Betsy Pitt	OGC/DER	4889730
David Thulman	DER	"
Tom Rogers	DER/BAQM	(904)488-1344
Willard Hanks	DER/BAQM	"
Bill E Beckett	DER/BAQM	
James K. Pennington	DER/BAQM	(904)488-1344

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

	Initial	Date
1. TO: (NAME, OFFICE, LOCATION) Clair Fancy DER		
2.		
3. JUN 24 1987		
4. BAQM		

REMARKS:

Please review & comment as soon as possible.

INFORMATION	
	Review & Return
	Review & File
	Initial & Forward

DISPOSITION	
	Review & Respond
	Prepare Response
	For My Signature
	For Your Signature
	Let's Discuss
	Set Up Meeting
	Investigate & Report
	Initial & Forward
	Distribute
	Concurrence
	For Processing
	Initial & Return

FROM: Elliott

DATE 6-23

PHONE

ONE EAST BROWARD BLVD
P. O. BOX 14070
FORT LAUDERDALE, FLORIDA 3330
(305) 525-1000

NETT BANK BLDG.
O. DRAWER 610
ASSEE, FLORIDA 32302
904) 224-7000

600 NORTH FLORIDA AVE.
P. O. BOX 1288
TAMPA, FLORIDA 33601
(813) 223-1621

888 SEVENTEENTH STREET, N.
SUITE 400
WASHINGTON, D. C. 20006
(202) 955-5550

RECEIVED
JUN 23 1987
DIVISION OF
ENVIRONMENTAL PERMITTING

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Inc.

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time to respond to.

18. Provide a capital cost estimate to install dust removal equipment and control devices at all dry rock transfer points, bins/silos and car loading, in accordance with the commonly accepted technology and good engineering practices. The capital cost estimate that was submitted utilized technology

DER
JUN 24 1987
BAQM

LAW OFFICES

HOLLAND & KNIGHT

1401 MANATEE AVENUE WEST
P. O. BOX 241
BRADENTON, FLORIDA 33506
(813) 747-5550

ONE EAST BROWARD BLVD
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92 LAKE WIRE DRIVE
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CABLE ADDRESS
HND KNIGHT TPA
H&K MIA
TELEX 5-2630-TAMPA
TELEX 52-2233-MIAMI

PLEASE REPLY TO: Tallahassee

888 SEVENTEENTH STREET, N. W.
SUITE 400
WASHINGTON, D. C. 20006
(202) 955-5550

June 23, 1987

HAND DELIVERY

Ms. Margaret Elligett
Environmental Specialist
Division of Environmental Permitting
Program Coordination
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahasssee, Florida 32301

Re: Application for Variance of Estech, Inc.
(Our File No. 3668-93)

Dear Margaret:

This letter responds to your letter to me dated June 4, 1987 ("June 4 letter"). In that letter you stated that the Florida Department of Environmental Regulation ("Department") required additional information from our client, Estech, Inc. ("Estech") in order to make a final determination on Estech's request for variance from the requirements of Florida Administrative Code Rule 17-2.610(2) -- the so-called "Opacity Rule."

Estech is in the process of developing the additional information requested in the June 4 letter and will supply that information to the Department as soon as it is developed.

However, it must be pointed out that Information Request No. 18 in the June 4 letter will take some time to respond to. That request provides as follows:

> 18. Provide a capital cost estimate to install dust removal equipment and control devices at all dry rock transfer points, bins/silos and car loading, in accordance with the commonly accepted technology and good engineering practices. The capital cost estimate that was submitted utilized technology

> that has not been successfully demonstrated in the phosphate industry. What are the operation and maintenance costs?

(Emphasis supplied.)

The above-referenced request (particularly the underscored passage) concerns Estech. The company believes that the technology provided in the Foster Wheeler Report (i.e. baghouse, dust suppressant system and modification to conveyor transfers) is an effective emission control technology. Estech representatives have contacted Mr. Bill Thomas with the Department's Southwest District Office in Tampa for clarification on this point. According to Mr. Thomas, the Department continues to recognize baghouses and scrubbers as effective control technology but takes the position that the dust suppressant system referenced in the Foster Wheeler Report has not been successfully demonstrated. Mr. Thomas also apparently takes the position that because the dust suppressant system is inadequate, the conveyor transfers must be equipped with some type of dust collection system.

To respond to the Department's request, Estech will have to develop a new control technology design and calculate an additional cost estimate for that new design. An additional engineering study will be required to develop this information. Estech will submit this information to the Department as soon as it becomes available. The Department should note, however, that submittal of this information in no way should be construed as an admission by Estech that the dust suppressant system referenced in the Foster Wheeler Report is not appropriate control technology.

Should you have any questions regarding this matter, please contact me immediately.

Sincerely,

HOLLAND & KNIGHT

D. Bruce May

DBM/sms
cc: William Thomas
Joseph E. Davis
Robert L. Rhodes, Jr., Esquire

TO: Bill T

FROM: Clair Fancy

DATE: 4/21

SUBJ: Estech Variance

DATE DUE: 5/5

DATE COMPLETED: _____

Please accomplish the following job assignment by the date due.

please assign & have reviewed in memo to margaret thru me by above date. Copy Walt on response

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

FOR ROUTING TO OTHER THAN THE ADDRESSEE

To: _____ Locin: _____
To: _____ Locin: _____
To: _____ Locin: _____
From: _____ Date: _____

TO: Margaret Elligett

FROM: Clair Fancy

DATE: April 30, 1987

SUBJ: Request for Variance
File No. VE-53-314
Estech, Inc.

The subject application for variance submitted by Estech, Inc. has been reviewed. Before this application can be processed, the Department will need the following information.

1. Copies of applications for permits to construct and construction permits for the following:

   a. Rotary dryer
   b. Fluo-solids dryer
   c. Materials transfer and storage facilities
   d. Loading facilities

2. Copies of applications for permits to operate the following:

   a. Rotary dryer
   b. Fluo-solids dryer
   c. Material transfer and storage facilities
   d. Loading facilities

3. Copies of permits to operate and latest annual reports for the following:

   a. Material transfer and storage facilities
   b. Loading facilities

4. Copy of Warning Notice No. 53-83-08-313 dated August 29, 1983, from the Department to Estech, Inc.

5. Give details of project and cost of improvements during period of August, 1983 through November, 1985 and to date.

6. Furnish details of the "DeTer" and "Nalco" dust surpression systems, i.e., where and how they were applied, and percent effective.

7. What are the social, economic and environmental impacts on the applicant, residents of the area and the state:

   a. If the Variance is granted?
   b. If the Variance is denied?

   Give details, considering limited life of operation.

8. Furnish copy of case No. GC-G-87-585, State of Florida Department of Environmental Regulation vs Estech, Inc. and all other enforcement action taken by DER against these sources.

9. Please show the calculations involved in determining the emission factors used at the two transfer points. The formula given in the application does not match the one in AP-42 (see attached copy). Neither your formula or the AP-42 one gives the value used in your report.

10. The only particulate sources modeled were the two transfer points. For comparison with the ambient air quality standard, all sources of particulate emissions at the Estech facility and nearby major sources should be included in the model. Those sources not modeled are generally included by determining an appropriate background concentration to be added to the maximum modeled result. Please include all other sources of particulate emissions at Estech and other major sources in the modeling. Develop a background concentration from local monitoring data using the most recent year of data.

11. Please verify that the plant property line constitutes a physical barrier to access by the general public.

12. The atmospheric dispersion model used was version 5 of the Industrial Source Complex model. Version 6 of this model is currently available and should be used. Please resubmit the modeling using the latest version.

I assigned Bob E. Daugherty to review this variance.

We have nothing in our files on the subject facility. I question if all of this facility has been permitted.

BD/ks

$$E = k(0.00090)\ \frac{\left(\frac{s}{5}\right)\left(\frac{U}{2.2}\right)\left(\frac{H}{3.0}\right)}{\left(\frac{M}{2}\right)^2} \quad (kg/Mg) \qquad (2)$$

$$E = k(0.0018)\ \frac{\left(\frac{s}{5}\right)\left(\frac{U}{5}\right)\left(\frac{H}{10}\right)}{\left(\frac{M}{2}\right)^2} \quad (lb/ton)$$

where: E = emission factor
k = particle size multiplier (dimensionless)
s = material silt content (%)
U = mean wind speed, m/s (mph)
H = drop height, m (ft)
M = material moisture content (%)

The particle size multiplier (k) for Equation 2 varies with aerodynamic particle size, as shown in Table 11.2.3-2.

Equations 1 and 2 retain the assigned quality rating if applied within the ranges of source conditions that were tested in developing the equations, as given in Table 11.2.3-3. Also, to retain the quality ratings of Equations 1 or 2 applied to a specific facility, it is necessary that reliable correction parameters be determined for the specific sources of interest. The field and laboratory procedures for aggregate sampling are given in Reference 3. In the event that site specific values for correction parameters cannot be obtained, the appropriate mean values from Table 11.2.3-1 may be used, but in that case, the quality ratings of the equations are reduced by one level.

TABLE 11.2.3-3. RANGES OF SOURCE CONDITIONS FOR EQUATIONS 1 AND 2[a]

Equation	Silt content (%)	Moisture content (%)	Dumping capacity m^3	Dumping capacity yd^3	Drop height m	Drop height ft
Batch drop	1.3 - 7.3	0.25 - 0.70	2.10 - 7.6	2.75 - 10	NA	NA
Continuous drop	1.4 - 19	0.64 - 4.8	NA	NA	1.5 - 12	4.8 - 39

[a] NA = not applicable.

For emissions from equipment traffic (trucks, front end loaders, dozers, etc.) traveling between or on piles, it is recommended that the equations for vehicle traffic on unpaved surfaces be used (see Section 11.2.1). For vehicle travel between storage piles, the silt value(s) for the areas

BD/Memo/Este

TO: Margaret Elligett

FROM: Clair Fancy

DATE: April 28, 1987

SUBJ: Request for Variance
File No. VE-53-314
Estech Inc.

The subject application for variance submitted by Estech Inc. has been reviewed. Before this application can be processed, the Department will need the following information.

1. Copies of applications to construct and construction permits for the following:

    a. Rotary dryer

    b. Fluo-solides dryer

    c. Materials transfer and storage facilities

    d. Loading facilities

2. Copies of applications for permits to operate the following:

    a. Rotary dryer

    b. Fluo-solids dryer

    c. Material transfer and storage facilities

    d. Loading facilties

3. Copies of permits to operate the following:

   a. Material transfer and storage facilities

   b. Loading facilities

4. Copy of Warning Notice No. 53-83-08-313 dated August 29, 1983, from the Department ~~of~~ to Estech, Inc.

5. Give details and cost of improvements during period of August, 1983 through November, 1985 and to date.

6. Furnish details of the "Dexter" and "Nalco" dust surpression systems, i.e., where and how they were applied and percent effective.

7. What are the social, economic and environmental impacts on the applicant, residents of the area and the state:

   a. If the Variance is granted?

   b. If the Variance is denied?

   Give details, considering limited life of operation.

8. Furnish copy of case No. GC-~~8~~6-87-585, State of Florida Department of Environmental Regulation vs Estech, Inc.

9. Please show the calculations involved in determining the emission factors used at the two transfer points. The formula given in the application does not match the one in AP-42 (see attached copy). Neither your formula or the AP-42 one gives the value used in your report.

10. The only particulate sources modeled were the two transfer points. For comparison with the ambient air quality standard, all sources of particulate emissions at the Estech facility and nearby major sources should be included. Those sources not modeled are generally included by determining an appropriate background concentration to be added to the maximum modeled result. Please include all other sources of particulate emissions at Estech and other major sources in the modeling. Develop a background concentration from local monitoring data using the most recent year of data.

11. Please verify that the plant property line constitutes a physical barrier to access by the general public.

12. The atmospheric dispersion model used was version 5 of the Industrial Source Complex model. Version 6 of this model is currently available and should be used. Please resubmit the modeling using the latest version.

I assigned Bob E. Daugherty to review this variance.

We have nothing in our files on the subject facility. I question if this facility has been permitted.

BD/ks

To: Bob Daugherty
From: Tom Rogers
Date: April 27, 1987
Subject: Estech, Inc. -- Incompleteness Questions

The following questions need to be answered before the review of the ambient air quality impact analysis can be continued.

1. Please show the calculations involved in determining the emission factors used at the two transfer points. The formula given in the application does not match the one in AP-42 (see attached copy). Neither your formula or the AP-42 one gives the value used in your report.

2. The only particulate sources modeled were the two transfer points. For comparison with the ambient air quality standard, all sources of particulate emissions at the Estech facility and nearby major sources should be included. Those sources not modeled are generally included by determining an appropriate background concentration to be added to the maximum modeled result. Please include all other sources of particulate emissions at Estech and other major sources in the modeling. Develop a background concentration from local monitoring data using the most recent year of data.

3. Please verify that the plant property line constitutes a physical barrier to access by the general public.

4. The atmospheric dispersion model used was version 5 of the Industrial Source Complex model. Version 6 of this model is currently available and should be used. Please resubmit the modeling using the latest version.

To: Bob Daugherty
From: Tom Rogers
Date: April 23, 1987
Subject: Estech, Inc. -- Permit Modification/Variance

I have reviewed the Estech request for the permit modification or variance. In particular, I reviewed the air quality modeling submitted in support of their request. The following questions need to be answered before I can continue my review.

1. The emission factor calculation for the two tranfer points modeled needs to be explicitly calculated. I have looked up the formula that Estech supposedly used in AP-42 and the two formulas are not the same. I have tried to verify the emission factor that they get with both their formula and the one in AP-42. Neither one gives Estech's result. They either need to explain what they did and why it is right or recalculate the correct emission factor and use it in their modeling.

2. The only particulate sources modeled were the two transfer points. For comparison with the ambient air quality standard all sources of particulate emissions at the Estech facility and nearby major sources should be included. Those sources not modeled are generally included by determining an appropriate background concentration to be added to the maximum modeled result. Are there other sources of particulate emissions at Estech? If so, they need to be included in the modeling and an appropriate background concentration needs to be determined.

3. The atmospheric dispersion model used by Estech was the Industrial Source Complex (ISC) model, version 5. Version 6 of this model is currently available and should be used.

In general, the results of their submitted modeling analysis indicate quite high concentrations of particulate. On their plant property they greatly exceed the 24-hour ambient standard. Only the fact that their closest property line is 770 meters from the sources keeps them below the standard there. The only two sources considered were the two transfer points -- no other sources (or background concentration) were included. The rest of their modeling work seems OK. The only other question I may have has to do with the method used to determine the particle size distribution. It's the same as that used by Gardinier for their gyp pile. If you think the method is allright, then I have no further questions at this time.

STATE OF FLO DA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In The Matter Of Estech, Inc.,
Permit Nos. AO53-66846, AO53-69787

REQUEST FOR PERMIT MODIFICATION OR, ALTERNATIVELY, PETITION FOR VARIANCE

Pursuant to Chapter 403, Florida Statutes, and Florida Administrative Code Rule 17-2.610(2), Estech, Inc. ("Estech") requests the Florida Department of Environmental Regulation ("Department") to modify the above-captioned air pollution source permits to add an appropriate visible emission standard for Estech's phosphate rock drying and loading facility. In the alternative, pursuant to Section 403.201, Florida Statutes, and Florida Administrative Code Rule 17-103.100, Estech petitions the Department for a variance from the 20% opacity standard set forth in Florida Administrative Code Rule 17-2.610(2). In support thereof, Estech states:

Background

1. Estech is a Delaware corporation duly authorized and registered to transact business in the State of Florida. The company's mailing address is Post Office Box 208, Bartow, Florida 33830. Estech manufactures, distributes and markets agricultural products including phosphate rock.

2. Estech currently owns and operates a phosphate rock drying and loading facility in Agricola, Florida ("Facility"). The operations at the Facility can be generally described in three steps. Step one involves the deposit of raw material (i.e., phosphate rock) into two phosphate rock dryers to remove excess moisture from the rock. Step two involves the transfer of the dried rock by a series of conveyor belts to storage hoppers. The final step involves the unloading of dried rock from the hoppers into rail cars for shipment.

3. Estech has received from the Department air pollution source permits to operate the two phosphate rock dryers and associated loading and handling installations at the Facility. Estech's Fluro-Solids Phosphate Rock Dryer is covered by Permit Number AO53-69787, dated August 9, 1983 (Exhibit A). Estech's Rotary Phosphate Rock Dryer is covered by Permit No. AO53-66846, dated May 27, 1983, as amended by Department letter dated June 14, 1983 (Exhibit B).

4. By Warning Notice No. 53-83-08-313 dated August 29, 1983, the Department informed Estech that excessive emissions of unconfined particulate matter were emanating from the loading and handling operations at the Facility in violation of Florida Administrative Code Rule 17-2.610(3)(a) (the "Reasonable Precautions Rule"). For approximately two years following the issuance of the warning notice, Estech and the Department worked together in an effort to modify the fugitive emission control systems at the Facility. Significant improvements and controls were effected. Nonetheless, in November, 1985, the Department for the first time advised Estech that the company needed to take further action to bring its loading and handling operations into compliance with the 20% opacity requirement set forth in Florida Administrative Code Rule 17-2.610(2)(a) (the "Opacity Rule").

5. By letter dated December 10, 1985 ("December 10 letter"), Estech (while denying the applicability of the Opacity Rule) proposed to carry out a definitive engineering study to evaluate alternative control technologies. The proposed study was targeted at demonstrating compliance with the Reasonable Precautions Rule, which requires that "reasonable precautions" should be taken to control unconfined emissions of particulate matter. Furthermore, the December 10 letter specifically noted that the information developed by the study could form the basis for a variance request should the Department continue to assert that the Opacity Rule applies to Estech's loading and handling operations. Estech periodically made inquiries to the Department's Southwest District office as to the status of the

matter and was informally advised in the S[illegible] of 1986 that the matter had been referred to Tallahassee for consideration of enforcement action. The Department never formally responded to Estech's December 10 letter despite representations by Department counsel that Estech would be advised of any proposed Department action.

6. On March 6, 1987, without prior notice, the Department filed a civil action in the Circuit Court for Polk County seeking injunctive relief and civil penalties against Estech for alleged violations arising out of the company's phosphate rock drying, loading and handling operations at the Facility. That action is styled State of Florida Department of Environmental Regulation v. Estech, Inc., Case No. GC-G-87-585.

Reservation Of Rights

7. This filing is an effort by Estech to resolve the above-described dispute with the Department and, in no way, should be interpreted as an admission by Estech of any liability whatsoever. Furthermore, nothing in this filing should be interpreted as an admission by Estech that Florida Administrative Code Rule 17-2.610(2) applies to unconfined particulate emissions at the Facility.

Request For Revised Visible Emissions Standard

8. The Department has indicated that unconfined particulate emissions emanating from loading and handling operations at the Facility are not in compliance with the Reasonable Precautions Rule [Rule 17-2.610(3)]. That rule simply requires that "reasonable precautions" be taken to prevent unconfined particulate emissions from certain activities including loading, unloading, storing or handling materials. The rule specifies activities that may constitute reasonable precautions and requires the Department to take into account "the cost of the control

technique or work practice and environmental impacts of the technique or practice, and the degree of reduction of emissions expected from the particular technique or practice." Fla. Admin. Code Rule 17-2.610(3)(d). Contrary to the Department's allegations, Estech has made significant efforts on its own to try to reduce particulate emissions which, in fact, do amount to "reasonable precautions." Estech's efforts designed to minimize unconfined particulate emissions include:

a. Drying the phosphate rock to the highest possible moisture content, consistent with customer specifications.

b. Attaching extensions to loading spouts in order to reduce "free-fall" from the chutes to the rail cars.

c. Closing hatches to storage hoppers when not in use.

d. Installing a "DeTer" dust supression system.

e. Installing a second dust supression system (called a "Nalco" system).

f. "Double-washing" of coarse phosphate rock material to remove clay (which is a significant contributor to fugitive particulate emissions).

These efforts illustrate that Estech has complied with the Department's Reasonable Precautions Rule.

9. Estech's compliance with the Reasonable Precautions Rule is even clearer when one recognizes that the rule itself requires that "any permit issued [by the Department] to a source of unconfined particulate shall specify the reasonable precautions to be taken by that source to control emissions of unconfined particulate matter." Fla. Admin. Code Rule 17-2.610(3)(b) (emphasis

supplied). Despite this express requirement, the permits currently issued by the Department to Estech do not specify what precautions are to be taken. The permits simply state that "all reasonable precautions shall be taken to prevent and control unconfined particulate emissions."

10. The Department has also indicated that fugitive emissions from the Facility are out of compliance with the Opacity Rule -- Florida Administrative Code Rule 17-2.610(2). That rule, in pertinent part, states:

> No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere any air pollutants from new, or existing sources, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart the opacity of which is equal to or greater than 20 percent.

Fla. Admin. Code Rule 17-2.610(2)(a). When the Opacity Rule is juxtaposed with the Reasonable Precautions Rule [Rule 17-2.610(3)], it is clear that the Opacity Rule does not apply to unconfined particulate emissions from loading and handling operations at the Facility. Rather, the Reasonable Precautions Rule is controlling. The Opacity Rule is, by its own terms, a flexible standard and should not render meaningless or undermine a rule (i.e., the Reasonable Precautions Rule) which specifically establishes emission standards for unconfined particulate matter. Indeed, the Opacity Rule recognizes that the 20% opacity standard must yield to higher opacity limits where reasonable precautions have been taken to combat particulate emissions. Fla. Admin. Code Rule 17-2.610(2)(a)(1-3).

11. The inapplicability of the Opacity Rule to fugitive particulate emissions from Estech's loading and handling operations also is confirmed by the air pollution source permits issued by the Department for the operation of Estech's phosphate rock dryers. Specific Condition 4 in Permit No. A053-69787 and in Permit No. A053-66846 makes it clear that the Reasonable Precautions Rule establishes the proper standard for fugitive particulate emissions from loading and handling operations at the Facility. Furthermore, no condition in the permits specifies

that the 20% opacity standard applies to fugitive particulate emissions from Estech's loading and handling operations.

12. Even if the Opacity Rule were to apply to unconfined particulate emissions from Estech's loading and handling operations, the rule provides for the establishment of alternative limits. The rule requires that the Department set an opacity standard above 20% where it is established:

(1) That the source is in compliance with an applicable particulate emissions standard (i.e., the Reasonable Precautions Rule);

(2) That the source was operated in a manner to mimize opacity emissions; and

(3) That the source and associated air pollution control equipment are incapable of being adjusted in such a manner to meet the opacity standard.

Fla. Admin. Code Rule 17-2.610(2)(a)(1-3). The Facility fits the above description and, therefore, is entitled to a higher opacity standard. As indicated, the Facility is in compliance with the Reasonable Precautions Rule and is operating its loading and handling facilities in a manner to minimize opacity emissions. No further adjustments may be made to the source or its current control features that will result in compliance with a 20% opacity limit.

WHEREFORE, Estech requests that the Department:

(A) Determine that the Opacity Rule does not apply to fugitive particulate emissions from the loading and handling operations at the Facility; or

(B) Modify the above-captioned permits to establish a revised opacity limit based upon additional testing and further discussions between Estech and the Department; and

(C) Grant such other relief as may be appropriate.

Alternative Petition For Variance

13. In the alternative, pursuant to Section 403.201, Florida Statutes, Estech seeks a variance from the Opacity Rule -- Florida Administrative Code Rule 17-2.610(2).

14. As grounds for the issuance of a variance, Estech states:

A. Enforcement of the 20% opacity standard would require Estech to implement elaborate emission control technologies at a cost grossly out of proportion to any environmental or ecological benefits derived from complying with such standard. Engineering studies indicate that the cost of installing additional emission control equipment to meet the 20% opacity requirement would be approximately $814,000 (Exhibit C). It also should be noted that it would require approximately one year to install such additional emission control equipment.

B. Technical evaluation carried out by an independent contractor consulting firm establishes that environmental impacts of current fugitive particulate emissions at the Facility are de minimis (Exhibit D).

C. Pursuant to Section 403.201(1)(c), Florida Statutes, Estech requests that the variance be for a period of 24 months and subject to renewal. The maximum term of any renewals would be for the remaining life of the Facility, which would be measured by the exhaustion and subsequent processing of "on ground" inventory from current mining reserves at Estech's Polk County mining operations. It is currently estimated that the rock drying and associated loading and handling operations at the Facility will be discontinued as of December, 1992.

D. An alternative opacity limit should be established based upon additional testing and further meetings between Estech and the Department. As indicated, environmental impacts from current fugitive particulate emissions are de minimis.

E. Estech has determined that it is not economically feasible to comply with a 20% opacity standard. Thus, if relief is not granted, Estech will be unable to comply with Florida Ad-

ministrative Code Rule 17-2.610(2) as presently interpreted by the Department. Granting of the variance will not have any significant negative social and environmental impacts. The economic benefits derived from granting the variance are directly related to the continuation of production and employment at the Facility and clearly outweigh the environmental impacts.

WHEREFORE, Estech requests that the Department:

A. Grant a variance from the requirements of Florida Administrative Code Rule 17-2.610(2), authorizing the emissions described herein; and,

B. Grant such other relief as may be appropriate.

CERTIFICATE OF FILING AND SERVICE

I HEREBY CERTIFY that the original of the foregoing was filed by hand delivery with Dale M. Twachtmann, Secretary of the Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32301, that a true and correct copy was filed by U.S. Mail with the Department of Environmental Regulation Southwest Florida District Office, 7601 Highway 301 N., Tampa, Florida 33610-9544, and that a true and correct copy was furnished by hand delivery to David K. Thulman, Assistant General Counsel, Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32301, all on this 3rd day of April, 1987.

Robert L. Rhodes, Jr.
D. Bruce May
HOLLAND & KNIGHT
P. O. Drawer 810
Tallahassee, Florida 32302
(904) 224-7000

3668-93Variance:162

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT
7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33610-9544

PERMITTEE:
Mr. John Oskam
Vice President - Mining
Estech, Inc.
Post Office Box 208
Bartow, FL 33830

PERMIT/CERTIFICATION
Permit No.: AO53-69787
County: Polk
Expiration Date: 7/15/88
Project: Fluo Solids
Phosphate Rock Dryer

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

For the operation of the Fluo-Solids Phosphate Rock Dryer with a Airetron Cyclonic wet scrubber. The fuel is natural gas or #5 fuel oil.

Location: Agricola Road, South of Bartow, Polk County

UTM: 17-411.5E 3074.2N NEDS NO: 0012 Point ID: 01

Replaces Permit No.: AO53-6818A

EXHIBIT A

PERMITTEE:
Estech, Inc.

Permit/Certification No.: AO53-69787
Project: Fluo Solids Phosphate Rock Dryer

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 Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate the enforcement 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 applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.

3. As provided in Subsections 403.087(6) and 403.712(5), 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 infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use 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.

5. 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 penalties 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, unless specifically authorized by any order from the department.

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as maybe required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purposes of;

a. Having access to and copying any records that must be kept under the conditions of the permit:

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. 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.

9. 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 403.73 and 403.111, Florida Statutes.

10. The 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.

11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

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)

( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

14. (con't)

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Test the emissions for the following pollutant(s) at intervals of 6 months thereafter from the date April 26, 1983 and submit a copy of test data to the Air Section of the Southwest District Office within forty-five days of such testing (Section 17-2.700 (2), Florida Administrative Code (F.A.C.)).

(X) Particulates	( ) Sulfur Oxides
( ) Fluorides	( ) Nitrogen Oxides
(X) Opacity	( ) Hydrocarbons
	( ) Total Reduced Sulfur

*Fuel analysis may be submitted for required sulfur dioxide emission test.

2. Testing of emissions must be accomplished at approximately the rates as stated in the application. Failure to submit the input rates or operation at conditions which do not reflect actual operating conditions may invalidate the data (Section 403.161(1)(c), Florida Statutes).

SPECIFIC CONDITIONS (con't):

3. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information as per Section 17-4.14, F.A.C.

(A) Annual amount of materials and/or fuels utilized.
(B) Annual emissions (note calculation basis).
(C) Any changes in the information contained in the permit application.

4. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provision in Section 17-2.610 (3), F.A.C.. These provisions are applicable to any source, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling.

5. This emission control equipment shall be operated and maintained by qualified personnel in accordance with standards established by the Department. This includes bi-weekly inspections, replacement or repair of faulty equipment when necessary. (Chapter 17-4.23(4)(b), F.A.C.).

6. Maintenance and performance records shall be retained for a minimum of 2 years and made available to the Department on request.

7. The maximum particualte emissions from this source shall not exceed 43.99 pounds per hour per Estech's request to avoid the conditions of 17-2.650, F.A.C. At process rates below 383 TPH, allowable particulate emissions are determined by using the appropriate equation in 17-2.610, F.A.C.

8. Visible emissions shall not be equal to or greater than 20% opacity in accordance with Subsection 17-2.610(2)(b), F.A.C.

9. Compliance with the emission limitations of Specific Conditions Nos. 7 & 8 shall be determined using EPA Methods 1,2,3,4,5 and 9 contained in 40 CFR 60, Appendix A and adopted by reference in Section 17-2.700, F.A.C. The minimum requirements for stack sampling facilities, source sampling and reporting, shall be in accordance with Section 17-2.700, F.A.C. and 40 CFR 60, Appendix A.

Issued this 9th day of August 1983.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

W. K. Hennessey
District Manager

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT
7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33610-9544

PERMITTEE:
Mr. John Oskam
Vice President - Mining
Estech, Inc.
Post Office Box 208
Bartow, FL 33830

PERMIT/CERTIFICATION
Permit No.: AO53-66846
County: Polk
Expiration Date: 05/16/88
Project: Phosphate Rock Dryer

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

For the operation of the rotary phosphate rock dryer with wet impingement scrubber. The fuel is natural gas or #5 fuel oil.

Location: Agricola Road, South of Bartow, Polk County

UTM: 17-411.5E 3074.2N NEDS NO: 0012 Point ID: 02

Replaces Permit No.: AO53-6635

EXHIBIT B

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 Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate the enforcement 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 applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.

3. As provided in Subsections 403.087(6) and 403.712(5), 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 infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use 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.

5. 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 penalties 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, unless specifically authorized by any order from the department.

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as maybe required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purposes of;

a. Having access to and copying any records that must be kept under the conditions of the permit:

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. 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.

9. 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 403.73 and 403.111, Florida Statutes.

10. The 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.

11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

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)

( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

14. (con't)

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Test the emissions for the following pollutant(s) at intervals of 6 months from the date March 9, 1983 and submit a copy of test data to the Air Section of the Southwest District Office within forty-five days of such testing (Section 17-2.700 (2), Florida Administrative Code (F.A.C.)).

(X) Particulates	( ) Sulfur Oxides
( ) Fluorides	( ) Nitrogen Oxides
( ) Opacity	( ) Hydrocarbons
	( ) Total Reduced Sulfur

*Fuel analysis may be submitted for required sulfur dioxide emission test.

PERMITTEE:
Estech, Inc.

Permit/Certification No.: AO53-66846
Project: Phosphate Rock Dryer

SPECIFIC CONDITIONS (con't):

2. Testing of emissions must be accomplished at approximately the rates as stated in the application. Failure to submit the input rates or operation at conditions which do not reflect actual operating conditions may invalidate the data (Section 403.161(1)(c), Florida Statutes).

3. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information as per Section 17-4.14, F.A.C.

(A) Annual amount of materials and/or fuels utilized.
(B) Annual emissions (note calculation basis).
(C) Any changes in the information contained in the permit application.

4. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provision in Section 17-2.610 (3), F.A.C.. These provisions are applicable to any source, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling.

5. This emission control equipment shall be operated and maintained by qualified personnel in accordance with standards established by the Department. This includes bi-weekly inspections, replacement or repair of faulty equipment when necessary. (Chapter 17-4.23(4)(b), F.A.C.).

6. Records of inspection, maintenance and performance parameter data shall be retained for a minimum of two years and shall be made available to the Department upon request. (Chapter 17-2.650(12)(5), F.A.C.). (2)(g)5

7. According to the Process Weight Table contained within Section 17-2.610, F.A.C., the maximum allowable emission rate of particulate matter for a maximum process rate of 206.65 tons/hour is 40.62 pounds/hour. At lesser process rates, the allowable emission rates can be determined from the appropriate equation.

See amended condition 7 and Thomas, letter from W.C. Thomas, dated 3-14-83.

PERMITTEE:
Estech, Inc.

Permit/Certification No.: AO53-66846
Project: Phosphate Rock Dryer

SPECIFIC CONDITIONS (con't):

8. Compliance with the emission limitations of Specific Condition No. 7 shall be determined using EPA Methods 1,2,3,4, and 5 contained in 40 CFR 60, Appendix A and adopted by reference in Section 17-2.700, F.A.C. The minimum requirements for stack sampling facilities, source sampling and reporting, shall be in accordance with Section 17-2.700, F.A.C. and 40 CFR 60, Appendix A.

Issued this 27th day of May
1983

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

W. K. Hennessey
District Manager

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT
7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33610-9544

June 14, 1983

Mr. J. R. Perrin
Environmental Surveillance Manager
Estech, Inc.
Post Office Box 208
Bartow, Florida 33830

Dear Mr. Perrin:

Enclosed is page 6 of 7 of permit AO53-66846 in which we have amended specific condition number 7. This condition specifies a maximum particulate emission rate of 41.32 pounds/hour. All other conditions of this permit remain the same.

If you have any questions contact me at (813)985-7402.

Sincerely,

W. C. Thomas P.E.
District Engineer
Air Programs

SPECIFIC CONDITIONS (con't):

2. Testing of emissions must be accomplished at approximately the rates as stated in the application. Failure to submit the input rates or operation at conditions which do not reflect actual operating conditions may invalidate the data (Section 403.161(1)(c), Florida Statutes).

3. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information as per Section 17-4.14, F.A.C.

(A) Annual amount of materials and/or fuels utilized.
(B) Annual emissions (note calculation basis).
(C) Any changes in the information contained in the permit application.

4. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provision in Section 17-2.610 (3), F.A.C.. These provisions are applicable to any source, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling.

5. This emission control equipment shall be operated and maintained by qualified personnel in accordance with standards established by the Department. This includes bi-weekly inspections, replacement or repair of faulty equipment when necessary. (Chapter 17-4.23(4)(b), F.A.C.).

6. Records of inspection, maintenance and performance parameter data shall be retained for a minimum of two years and shall be made available to the Department upon request. (Chapter 17-2.650(12)(5), F.A.C.).

7. According to the Process Weight Table contained within Section 17-2.610, F.A.C., the maximum allowable emission rate of particulate matter for a process rate of 206.65 tons/hour is 40.62 pounds/hour. At lesser process rates, the allowable emission rates can be determined from the appropriate equation. At higher process rates, emissions shall not exceed 41.32 pounds per hour as requested by the permittee to avoid RACT Chapter 17-2.650, F.A.C.

AIR QUALITY ASSESSMENT OF FUGITIVE EMISSIONS FROM A PHOSPHATE ROCK LOADING FACILITY

Prepared for:

ESTECH, INC.
Agricola, Florida

Prepared by:

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
Gainesville, Florida

ESE No. 86-167-0300-2110

November 1986

EXHIBIT D

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LIST OF FIGURES

1.0 INTRODUCTION

Estech, Inc. operates a phosphate rock storage, drying, and handling facility located at the Estech Silver City Mine, Agricola, Florida. The facility handles the drying and custom blending of phosphate concentrate and pebble rock and loads railcars with the product onsite. The Florida Department of Environmental Regulation (FDER) has issued a Warning Notice, #53-83-08-313, with respect to "unconfirmed particulate emission from monitor and rock-drying units."

Estech, Inc. has retained the services of Environmental Science and Engineering, Inc. (ESE) to conduct an air quality modeling analysis of fugitive particulate matter emissions from the existing source at the facility. The air quality analysis was performed to determine 24-hour average and annual total suspended particulate matter (TSP) impacts at the plant property line and 200 meters (m) beyond, as well as at distances in 36 directions, extending to 5 kilometers (km) from the facility.

Particulate matter samples were taken during actual loading of pebble phosphate from silos to railcars (the operation that produces highest emissions of particulate matter and instigated the previously cited Warning Notice). Particle size distributions were determined from the emissions sampled and used in the Industrial Source Complex Short Term (ISCST) modeling performed. The ISCST model is approved by the U.S. Environmental Protection Agency (EPA) and FDER. To address 24-hour average impacts, hourly concentrations were predicted using actual hourly meteorological data collected during a 5-year period (1974 to 1978) by the National Weather Service (NWS) at the Orlando, Florida NWS station.

Annual average concentrations were based on the hourly concentrations predicted using the maximum short-term emissions for every hour of the year. This is an extremely conservative approach because the facility does not operate on a daily basis, nor does it typically operate for a continuous 24-hour period.

The following sections present a description of the sources considered, the facility, the methods used in predicting expected maximum concentrations, and the results of the air quality modeling analysis.

2.0 SOURCE DESCRIPTION

Existing sources at the Estech Silver City phosphate rock storage, drying, handling, and loading facility consist of above-ground shuttle conveyors to the storage piles and underground conveyors which feed the rotary and fluosolids rock dryers. The dried rock then moves to the conveyor tripper belt, which feeds the various holding tanks. There are 10 rock holding tanks, of which No. 9 and No. 10 are typically the only tanks in use. Surge air from the dryers is passed through numerous cyclones, to return collected fine materials to the process flow.

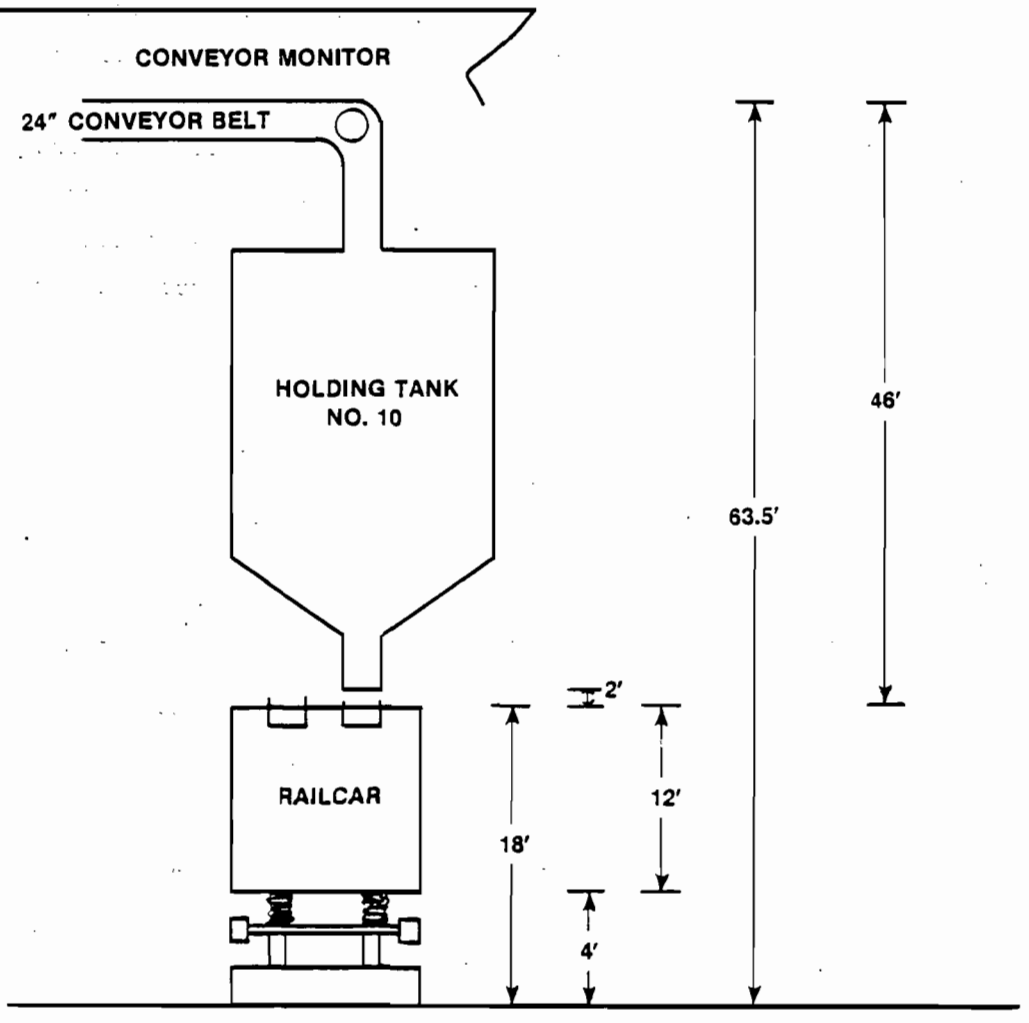
The two emission points addressed in this modeling analysis are considered to be the primary sources of fugitive particulate matter, namely, the tripper at the drop point to the No. 9 and No. 10 holding tanks, and the railcar loading platform below tanks No. 9 and No. 10.

The approximate heights of the functional components of the holding tanks and railcar loading apparatus are shown in Figure 2-1. The maximum drop heights, 46 feet (ft) from belt to tank bottom and 12 ft from tank discharge tube to railcar bottom, were used in estimating the emission rates.

Maximum process rates for both of the phosphate rock dryers were assumed for the purpose of worst-case emissions estimates. The maximum and average process rates expressed as dried rock, as reported by Estech, follow:

Dryer	Average*	Maximum
Fluosolids	383	475
Rotary	207	250
Total (Fluosolids + Rotary)	595	725

*Process rates expressed in tons per hour (tons/hr).



NOT TO SCALE

Figure 2-1
VERTICAL DIMENSIONS OF HOLDING TANK AND RAILCAR LOADING FACILITY, ESTECH, SILVER CITY

SOURCE: ESE, 1986.

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3.0 METHODOLOGY

3.1 PARTICULATE MATTER SAMPLING AND ANALYSIS

Particulate matter samples were taken at the following four locations on the phosphate rock handling facility:

1. The platform above the No. 10 holding tank, accessed by a high-lift bucket;
2. The conveyor belt tripper, where rock is dropped to the belt serving the holding tanks;
3. The railcar loading point below tank No. 10; and
4. The conveyor point, prior to the weightometer, where particulate matter collected by the cyclones at the southern end of the facility (rotary dryer) is fed back into the transferred product.

The four sampling locations are shown in Figures 3-1 through 3-4.

Samples were collected for approximately 45 minutes at each site, using three filters per site, 15 minutes per filter. Filters used were 47-millimeter (mm) glass fiber, housed in stainless steel EPA Method 17 filter holders. Air was drawn through the filters at a rate of approximately 10 liters per minute (Lpm) by 110-volt portable pumps. Samples were taken during normal transfer and loading of phosphate rock. Both the fluosolids and rotary rock dryers were in operation. Samples taken at the end of the monitor (belt-to-hopper) represented worst-case conditions because the wind direction was lined up with the length of the monitor, thereby causing the majority of the particulate matter discharge to be made through the open end of the monitor rather than the louvered side walls.

Particulate matter samples were prepared for shipment and sent to Particle Data Laboratories, Elmhurst, Illinois, where particle size distributions were performed using the electrozone method. This method is described in detail in Appendix A. The three samples taken at each

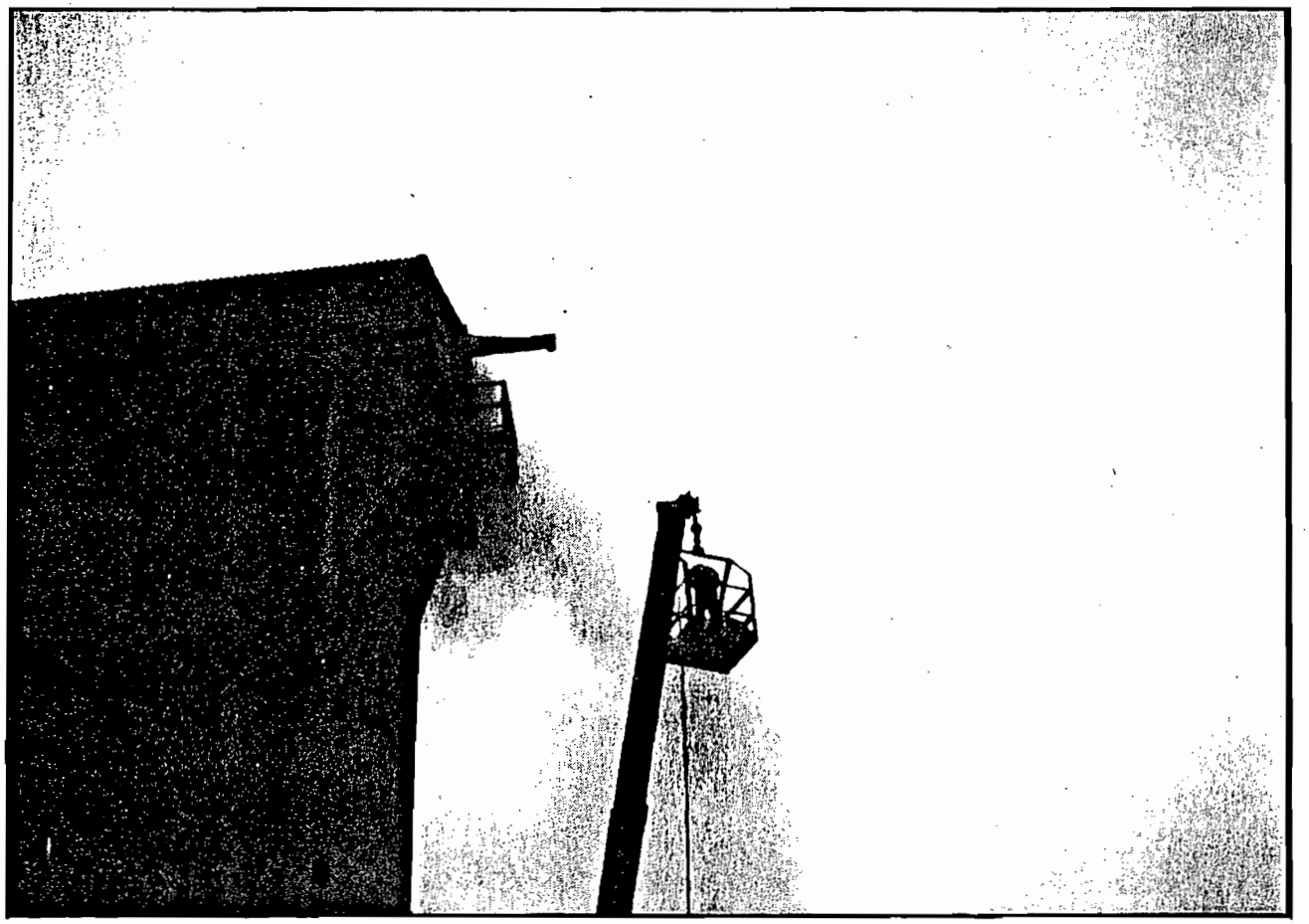

Figure 3-1
END OF MONITOR, ABOVE NO. 10 TANK

SOURCE: ESE, 1986.

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

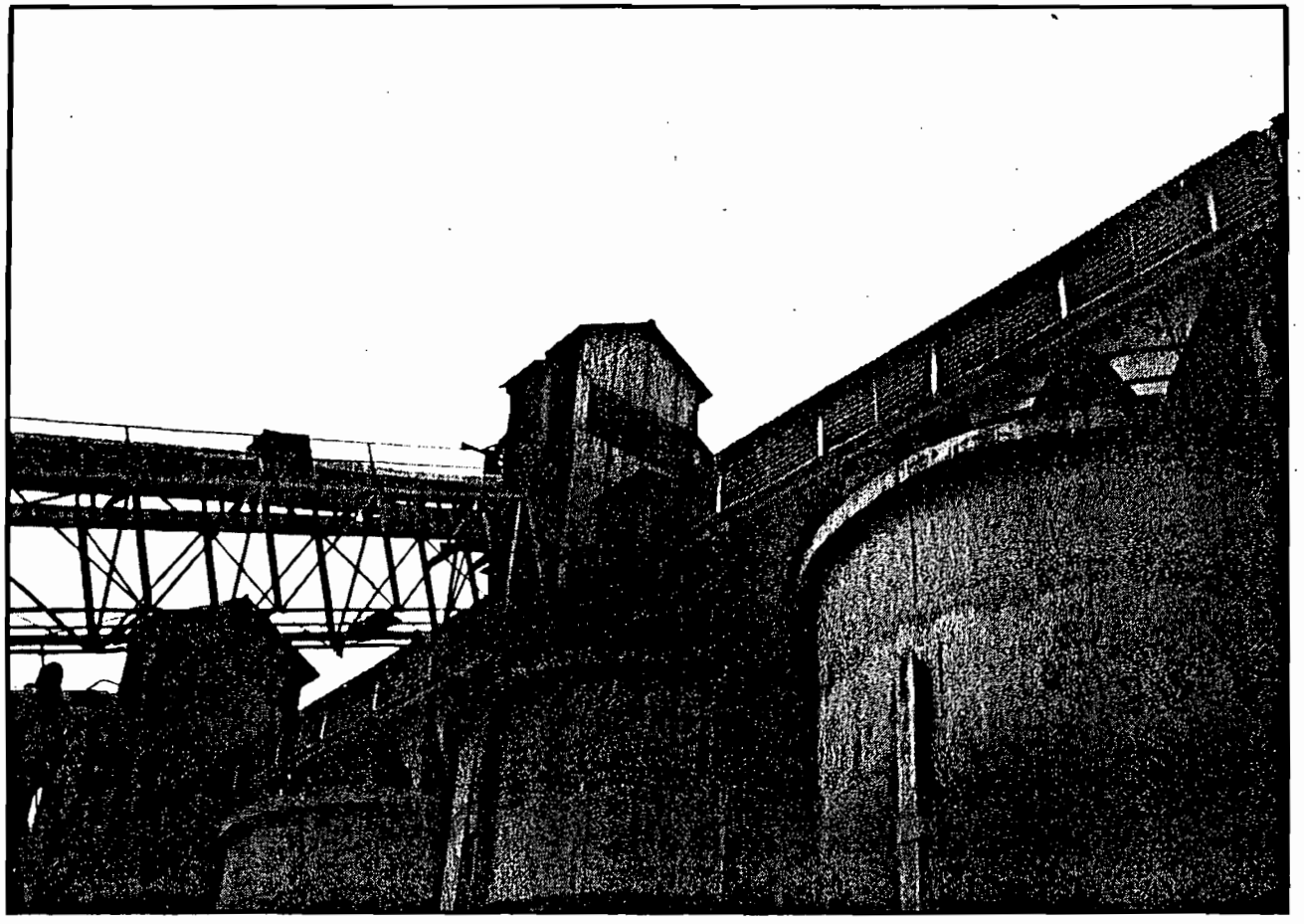

Figure 3-2
CONVEYOR BELT TRIPPER POINT, AT MONITOR

SOURCE: ESE, 1986.

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AND ENGINEERING, INC.

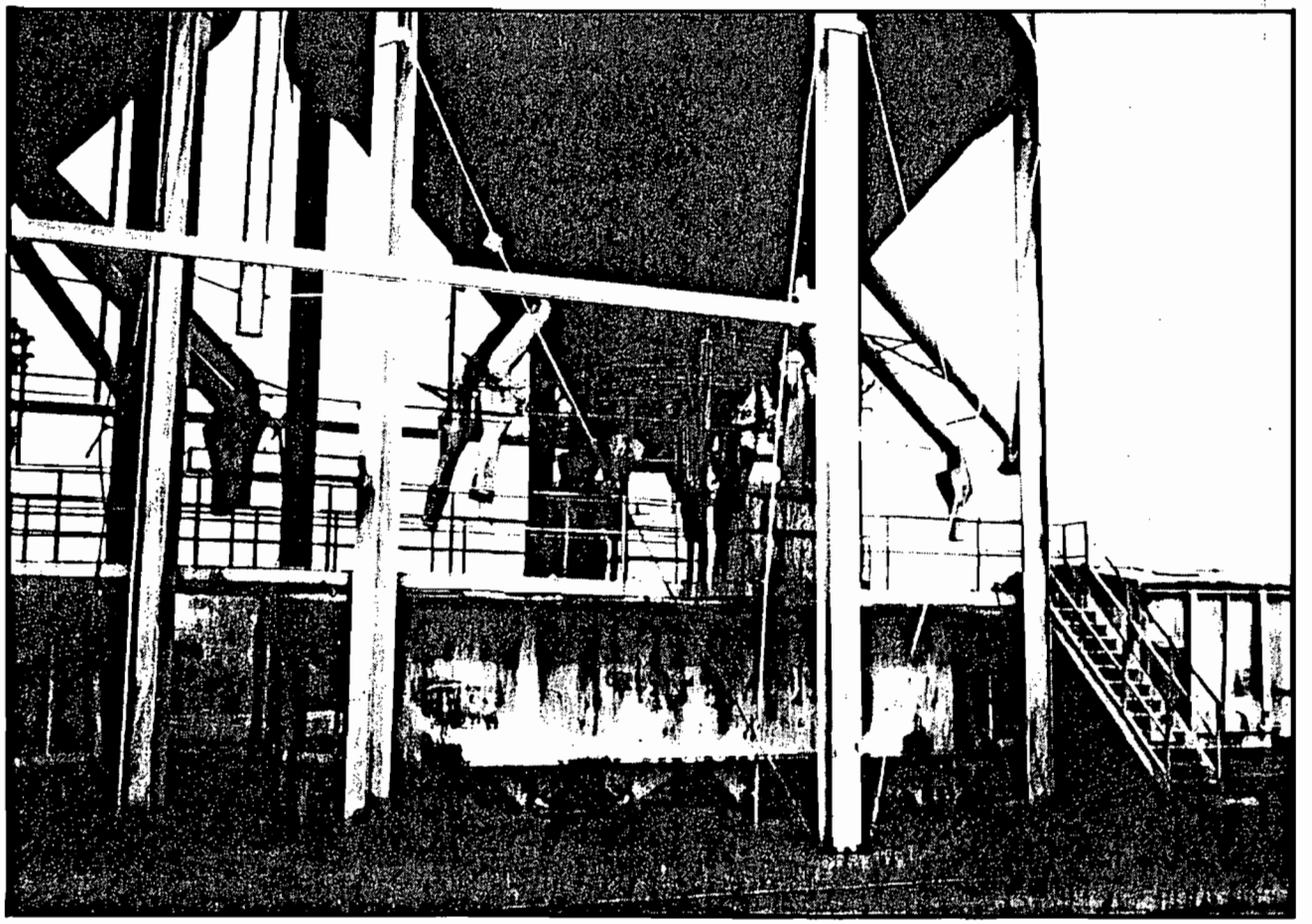


Figure 3-3
RAILCAR LOADING POINT, AT BOTTOM OF NO. 10 TANK

SOURCE: ESE, 1986.

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

Figure 3-4
TRIP POINT AFTER CYCLONES (ROTARY DRYER)
AND PRIOR TO WEIGHTOMETER

SOURCE: ESE, 1986.

ENVIRONMENTAL SCIENCE
AND ENGINEERING, INC.

measurement point were composited prior to analysis to obtain representative samples of emissions from the product transfer process.

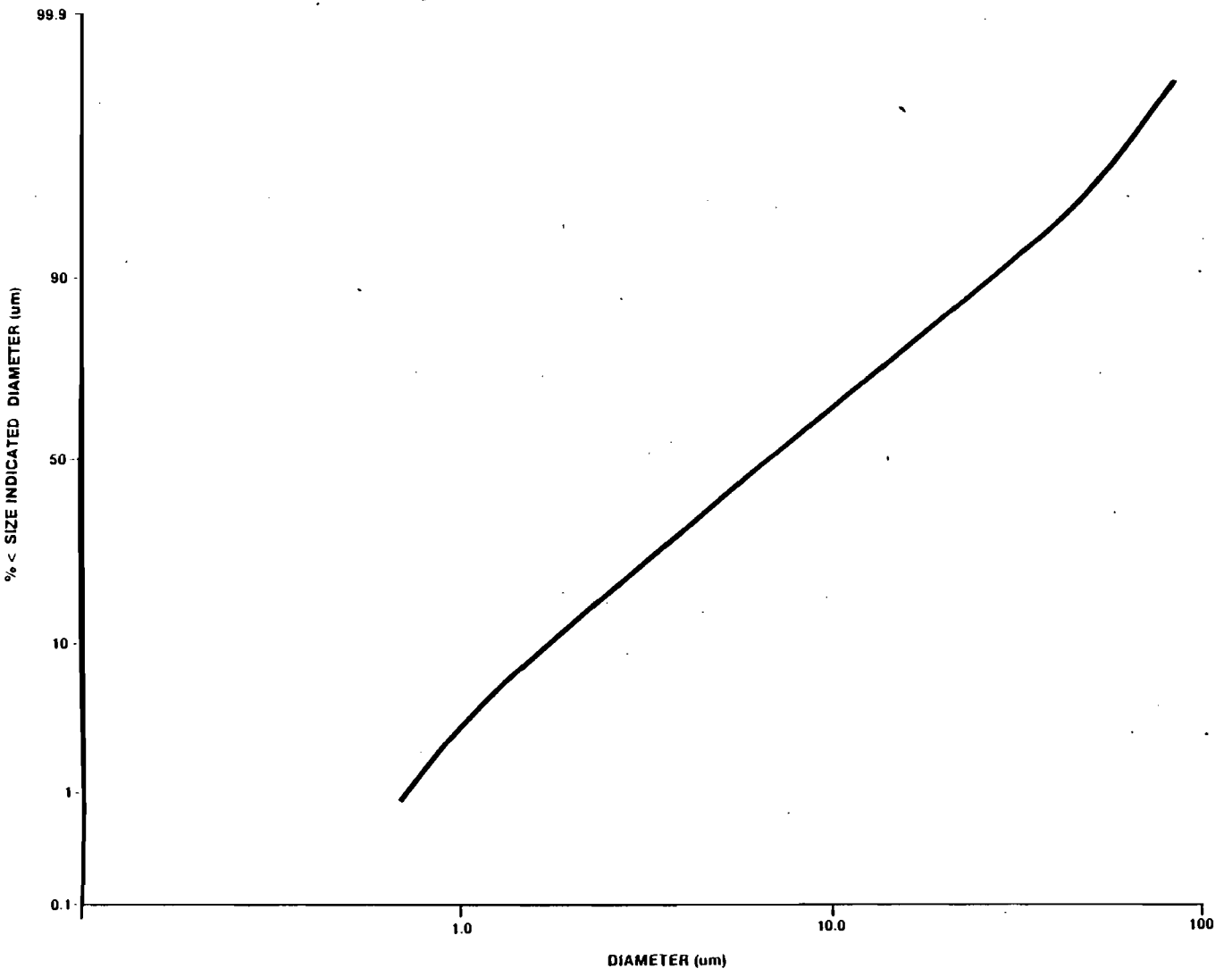
Particle size distributions, as reported by Particle Data Laboratories, were then plotted on log-normal probability paper, for determination of mass median diameter (MMD) and for ease of determining the particle size at the midpoint of each of the 10 particle size classes modeled with the ISCST model. Log-normal probability plots of the particle size distributions, based on results provided by Particle Data Laboratories, are presented in Figures 3-5 through 3-9. Figure 3-9 is a composite of Figures 3-5 through 3-8 and was used in determining the particle size classes to be used in the modeling.

Particle size classes were established at 10-percent intervals of the cumulative mass. The MMD for each of the 10 size classes, as well as the calculated settling velocity for each MMD, is presented in Table 3-1.

It is worthwhile to note that the MMD, at which 50 percent of the total mass is composed of larger particles for the total distribution, was found to be approximately 6.2 mm. The MMD reported for "Fertilizer Industry, Handling" in the June 1986 issue of the Journal of the Air Pollution Control Association is 7 micrometers (μm).

3.2 EMISSIONS ESTIMATES

A literature survey was conducted to determine if prior research had provided reproducible emission estimates for the handling of phosphate rock. Specific emission factors were not found in the literature. To arrive at an estimated emission factor, AP-42, Section 11.2-3.2, Aggregate Handling and Storage Piles, Equation 2, was used.



ESTECH 11/86A

Figure 3-5
PARTICLE SIZE DISTRIBUTION, NO. 10 HOLDING TANK EMISSIONS

SOURCE: ESE, 1986.

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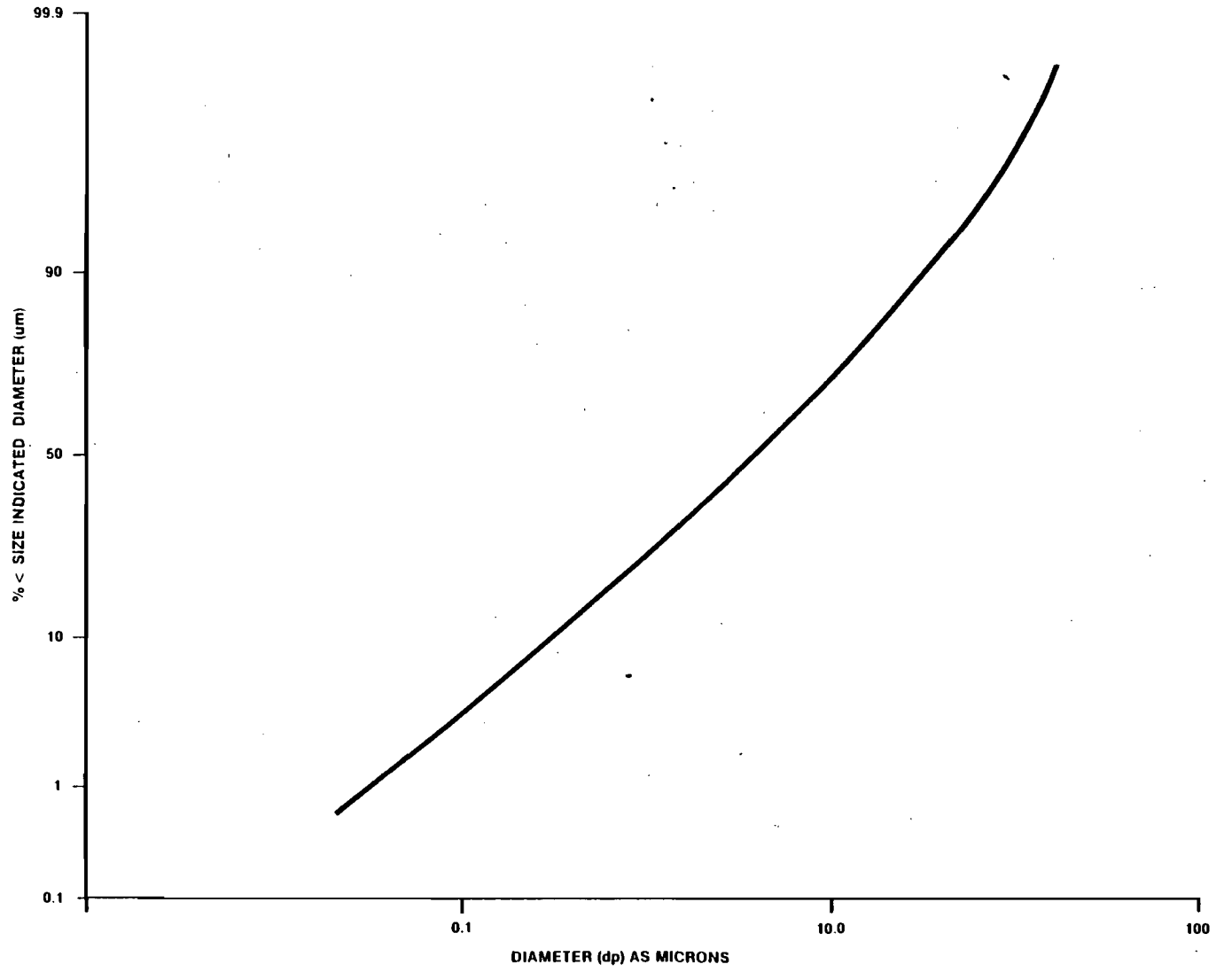

Figure 3-6
PARTICLE SIZE DISTRIBUTION, BELT CONVEYOR TO TRIPPER EMISSIONS POINT

SOURCE: ESE, 1986.

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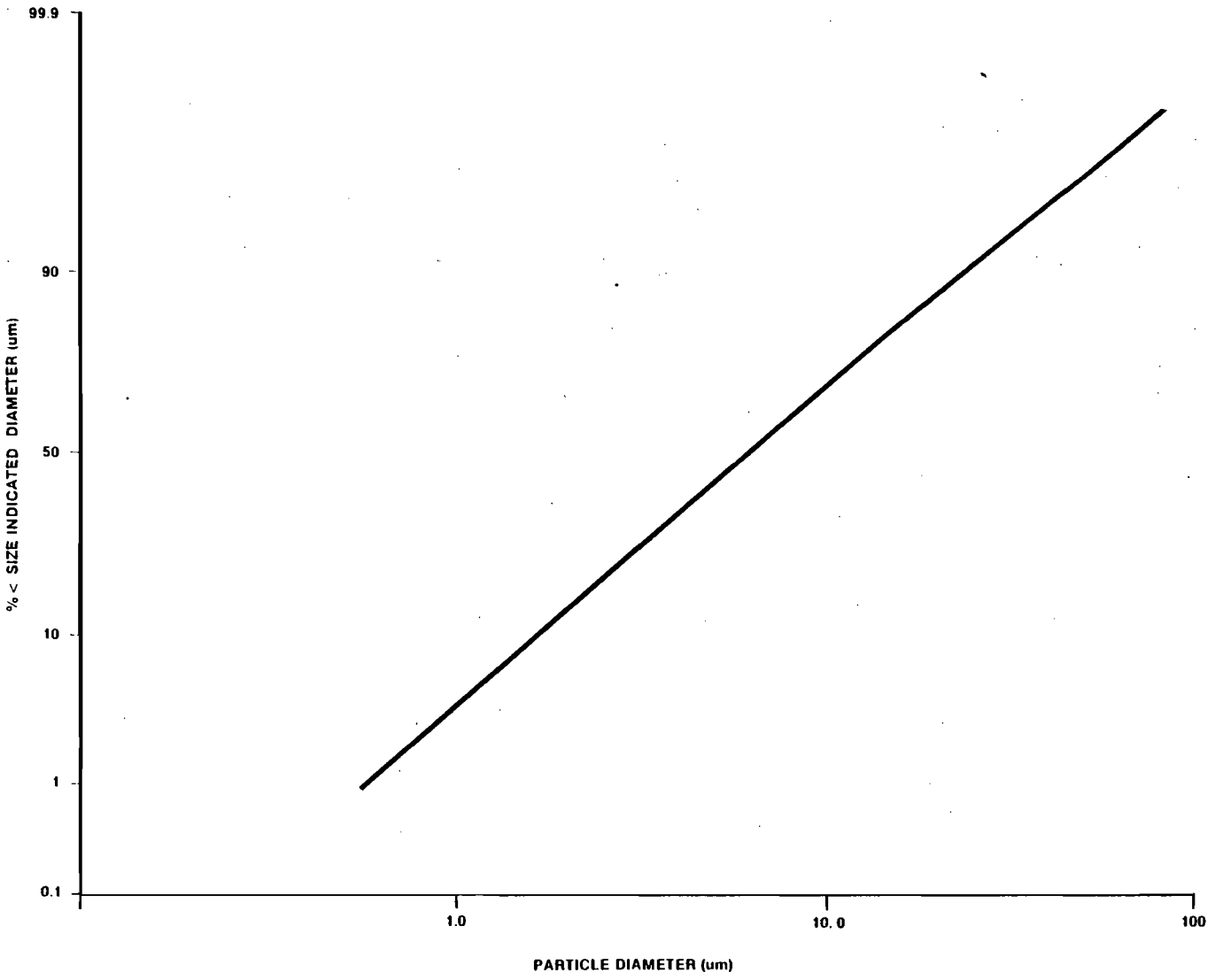

Figure 3-7
PARTICLE SIZE DISTRIBUTION, RAILCAR LOADING PLATFORM EMISSIONS POINT

SOURCE: ESE, 1986.

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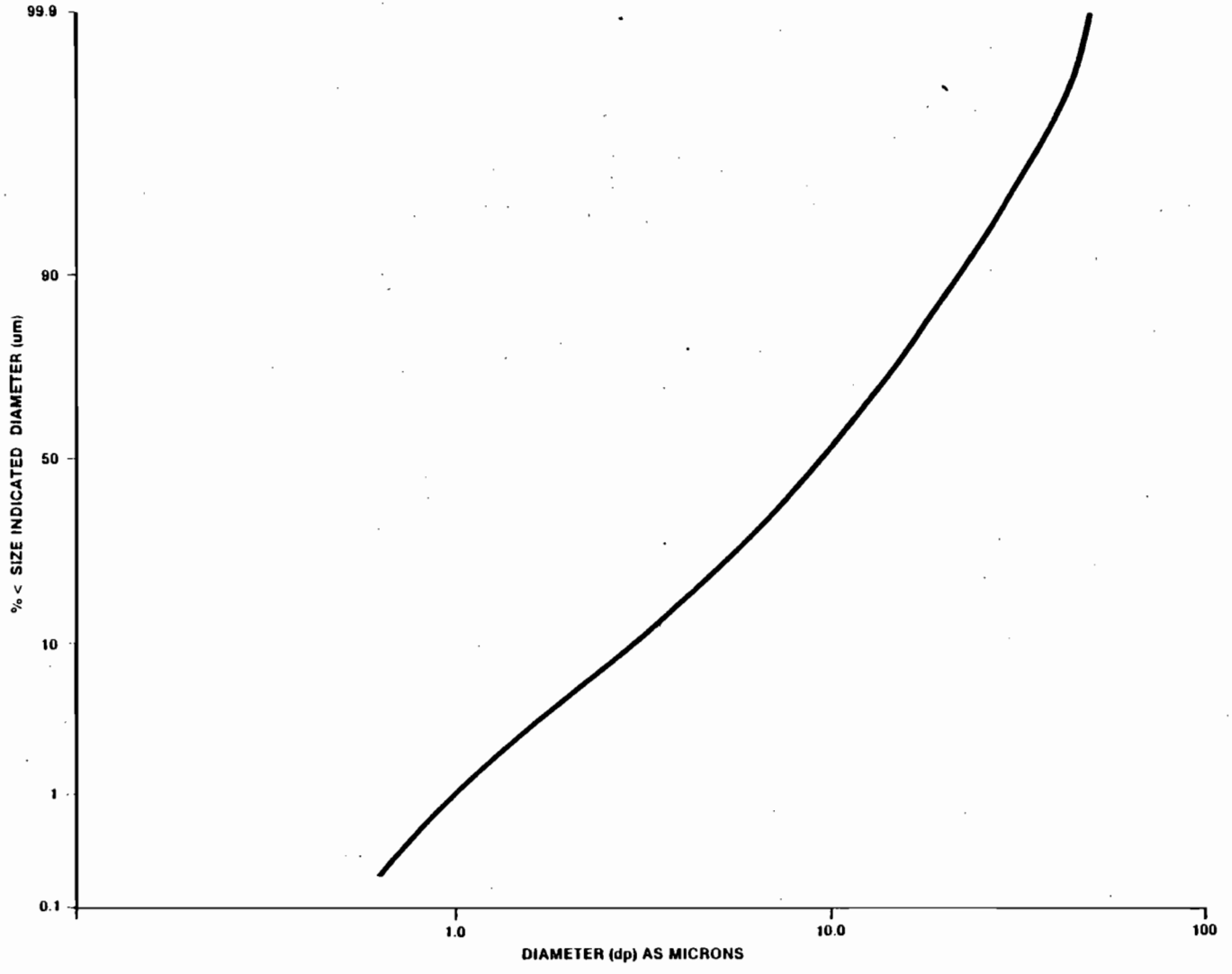

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Figure 3-8
PARTICLE SIZE DISTRIBUTION AT TRANSFER POINT AFTER CYCLONE SERVING ROTARY DRYERS

SOURCE: ESE, 1986.

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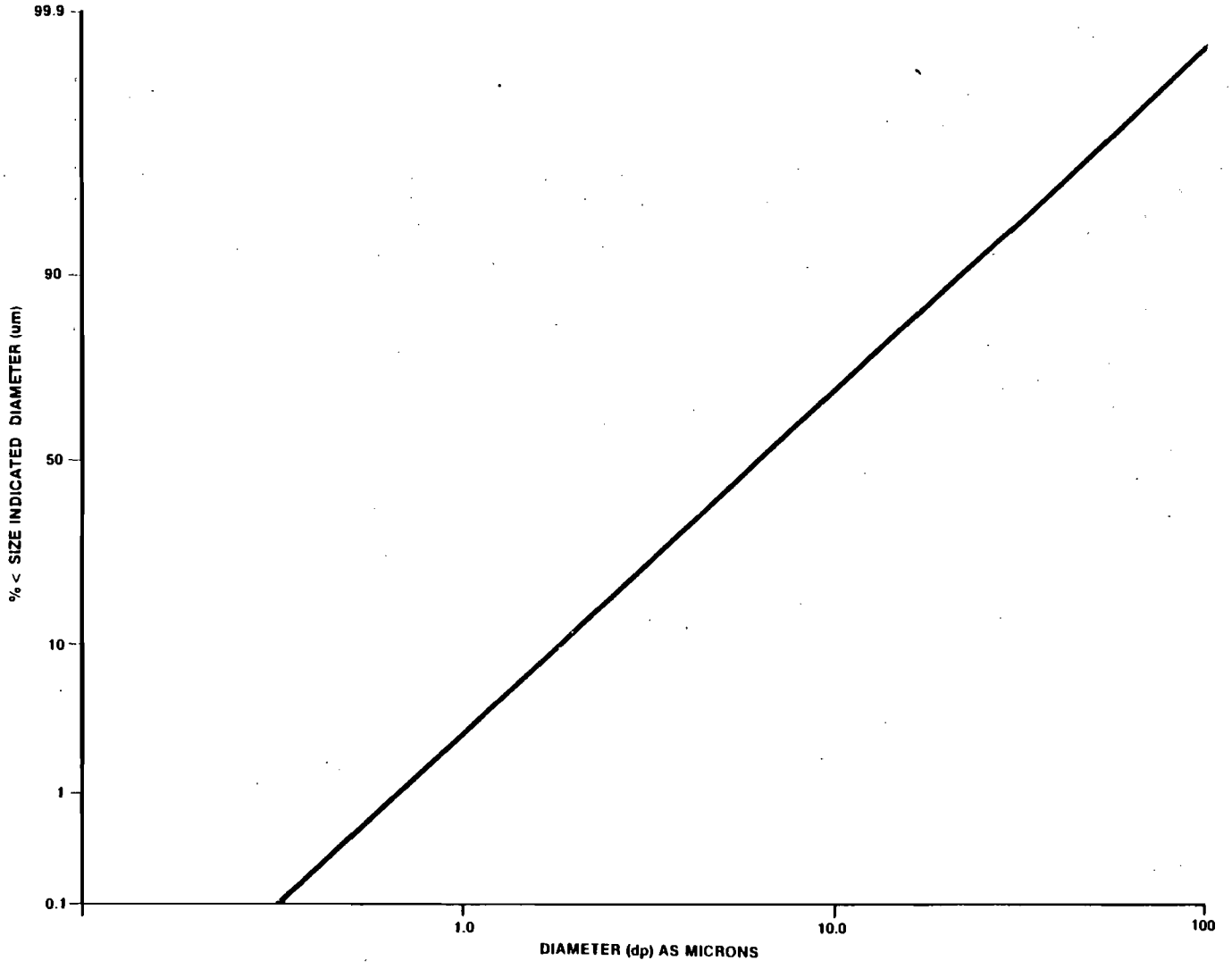

Figure 3-9
COMPOSITE PARTICLE SIZE DISTRIBUTION INCORPORATING DATA FROM FIGURES 3-5 THROUGH 3-8

SOURCE: ESE, 1986.

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Table 3-1. Mass Fractions, at 10-Percent Intervals, and Associated Settling Velocities

Percent Total Mass	MMD (μm)	V_s, as cm/sec
10	1.3	1.4×10^{-4}
10	2.3	4.4×10^{-4}
10	3.3	9.1×10^{-4}
10	4.3	1.5×10^{-3}
10	5.3	2.3×10^{-3}
10	7.1	4.2×10^{-3}
10	9.1	6.9×10^{-3}
10	12.0	1.2×10^{-2}
10	17.0	2.41×10^{-2}
10	31.0	8.00×10^{-2}

Note: V_s = terminal settling velocity.
cm/sec = centimeters per second.

Source: ESE, 1986.

The equation is as follows:

$$E \text{ (as tons/yr)} = \frac{\left(\frac{S}{5}\right)\left(\frac{U}{5}\right)\left(\frac{H}{10}\right)}{\left(\frac{M}{2}\right)^2}$$

E = emission factor;
S = silt contact, as percent;
K = particle size multiplier (dimensionless);
U = mean windspeed, as miles per hour (mph);
H = drop height, as feet; and
M = material moisture content.

The silt (diameter $\leq$ 75 µm, i.e., 200 sieve) content for the pebble rock was assumed to be 0.17 percent, as reported by Estech to Foster Wheeler Corporation (see Table 3-2). K was set to 1, to maximize the emissions estimate. U was assumed to be 10 mph, to provide a conservative estimate of emissions. The drop heights were conservatively assumed to be at their maximum of 12 and 46 ft, for the car loader and storage tank loading, respectively (see Figure 2-1). The moisture content was assumed to be approximately 2 percent, based on information provided by Estech. The emission estimates calculated for both drop heights and windspeeds of 2, 5, and 10 mph are shown in Table 3-3.

For the purpose of modeling, the maximum emissions estimates used were 0.61 and 0.16 grams per second (g/sec) for the belt-to-hopper and hopper-to-railcar, respectively. The control efficiency of the foam injection dust suppressant applied to the phosphate rock after the rotary dryer was not utilized in estimating the emissions because no firm statement or guarantee of minimum operating efficiency could be found.

Table 3-2. Material Temperature and Size Gradation

TELECON - John Previte 6-12-86

MAT'l TEMPERATURES

225°F at pryor discharge to 200°F at Bin entry.

There are some "hotspots" of 50°F.

20 Mesh.	840 MM	% Retained	% Passing 89.54	.033"	1/32"
30	600	10.46	82.77		
40	425	6.77	71.94		
50	300	10.83	47.65		
70	212	24.27	32.70		
80	180	14.94	19.58		
100	150	13.12	.78	"Dust"	
200	75	18.79	.17		
325	45	.61	.14	= 19.58%	
400	38	.03	0		
	38	.14			
		99.96			

Product Moisture is 2.25 n 2.5%

.14% @ 300 TPH = 10,000 #/min
x.0014 = 14 lb/min. Potential

Source: Estech, Inc., 1986.

Table 3-3. Particulate Matter Emissions Estimates

H	U	E (lb/ton)	Calculated Emission Rates: Maximum Grams* Second	Calculated Emission Rates: Average Grams† Second
**12	2	0.0003456	0.0316	0.0257
12	5	0.000864	0.0789	0.0642
12	10	0.001728	0.1579	0.1285
††46	2	0.0013248	0.1210	0.0985
46	5	0.003312	0.3026	0.2462
46	10	0.006624	0.6051	0.4924

Note: lb/ton = pound per ton.

*At maximum of 725 ton/hr.
†At average of 590 ton/hr.
** Railcar loading platform.
††Conveyor monitor and holding tank loading.

Source: ESE, 1986.

3.3. AMBIENT AIR QUALITY ANALYSIS

The Industrial Source Complex (ISC) model (Cramer, 1979) was used to predict the 24-hour and annual average TSP concentrations due to emissions from all sources considered in the analysis. The ISC model is capable of simulating the effects of emissions from a wide variety of industrial sources, including the fugitive PM emissions resulting from the proposed unloading and storage facility. All the existing permitted Estech sources with dust collectors and scrubbers were modeled as point sources. Based on the generic modeling approach recommended in the ISC Model User's Guide, the proposed unloading and storage activities in this analysis were modeled as either point or volume sources.

Concentrations due to point and volume source emissions are calculated by the ISC model using the steady-state Gaussian plume equation for a continuous point source. Initial horizontal and vertical dimensions are assigned to each volume source to simulate the initial dispersion of pollutants within the volume source. For sources located in and around buildings, these initial dimensions are generally based on the physical structure of the building to account for the wake effects produced by the building. A summary of the procedures used to estimate the initial dimensions is given in Table 3-4. The horizontal dimensions of the volume source must be square for input to the model. If a source cannot be characterized as square, then the general procedure for describing the source is to determine the actual area of the source and recalculate an effective square area.

The generalized Briggs (1971, 1975) plume rise equations, including the momentum terms, are used to calculate plume rise as a function of downwind distance. In this study, except for building downwash situations, the final plume rise was used for calculating concentrations at all receptor locations. A wind profile exponent law is used to adjust the observed mean wind speed from the measurement height to the emission height, for the plume rise and concentration calculations. The Pasquill-

Table 3-4. Summary of Procedures for Estimating Initial Lateral (σ_{yo}) and Vertical (σ_{zo}) Dimensions for Volume Sources

Source Type	σ_{yo}	σ_{zo}
Single, elevated volume source on or adjacent to a building	$\frac{(\text{width} \times \text{length})^{1/2}}{4.3}$	$\frac{\text{building height}}{2.15}$
Single, ground-based volume source	$\frac{(\text{width} \times \text{length})^{1/2}}{4.3}$	$\frac{\text{vertical dimension of source}}{2.15}$
Single, elevated volume source not on or adjacent to a building	$\frac{(\text{width} \times \text{length})^{1/2}}{4.3}$	$\frac{\text{vertical dimension of source}}{4.3}$

Source: ISC Model User's Manual, EPA, 1979.

Gifford (Turner, 1970) dispersion curves are used to calculate the horizontal standard deviation (σ_y) and vertical standard deviation (σ_z) of the plume spread.

The ISC model has rural and urban options which affect the wind speed profile exponent law, dispersion rates, and mixing height formulations used in calculating ground-level concentrations. The criteria used to determine when the rural or urban mode is appropriate are based on land use near the proposed plant's surroundings (Auer, 1978). If the land use is classified as heavy industrial, light-moderate industrial, commercial, or compact residential for more than 50 percent of the area within a 3-km radius circle centered on the proposed source, the urban option should be selected. Otherwise, the rural option is more appropriate. Based on the industrial and commercial development within a 3-km radius of the proposed source and its location on Tampa Bay, the rural mode was used in calculating ground-level concentrations.

The ISC model consists of two sets of computer codes which are used to calculate short- and long-term ground-level concentrations. The main differences between the two codes are the input format of the meteorological data and the method of estimating the plume's horizontal dispersion.

The first model code, the ISCST model, is an extended version of the single-source (CRSTER) model (EPA, 1977). The ISCST model is designed to calculate hourly concentrations based on hourly meteorological parameters (i.e., wind direction, wind speed, atmospheric stability, ambient temperature, and mixing heights). The hourly concentrations are processed into nonoverlapping, short-term, and annual averaging periods. For example, a 24-hour average concentration is based on twenty-four 1-hour averages calculated from midnight to midnight of each day. For each short-term averaging period selected, the highest and highest, second-highest average concentrations are calculated for each receptor.

As an option, a table of the 50 highest concentrations over the entire field of receptors can be produced.

The second model code is the ISC long-term (ISCLT) model, which is an extension of the Air Quality Display Model (AQDM) and the Climatological Dispersion Model (CDM). The ISCLT model uses joint frequencies of wind direction, wind speed, and atmospheric stability to calculate seasonal and/or annual average ground-level concentrations. Because the input wind directions are for 16 sectors, with each sector defined as 22.5 degrees, the model calculates concentrations by assuming that the pollutant is uniformly distributed in the horizontal plane within a 22.5-degree sector. For this analysis, the ISCLT model was used to calculate annual average concentrations because the model output produces annual average concentrations. Therefore, the ISCLT model was not considered in addressing air quality impacts.

3.4 METEOROLOGICAL DATA

Meteorological data used in the ISCST model to predict impacts of the fugitive particulate matter emission consisted of a 5-year period (1974 to 1978) of hourly surface weather observations from the NWS Station in Orlando, Florida (NWS Station No. 12815), and upper air observations from NWS Station No. 12842, also located in Orlando. Meteorological data from these stations were used because they are considered representative of the conditions at the plant site, as Orlando is located between the Gulf of Mexico and the Atlantic Ocean, thereby removing the land and seabreeze effects which would be present in Tampa meteorolgical data.

3.5 MODELING APPROACH

To address the air quality impacts of the Estech rock handling facility, a fairly tight radial receptor array was employed. Concentrations were predicted for the annual and 24-hour averaging periods for all 5 years. The receptor grid consisted of eight ranges (0.15, 0.2, 0.3, 0.5, 0.7, 1.5, 3.0, and 5.0 km) on 36 radials (starting at 0° and running through

350°) at 10° increments, for a total of 288 receptors. Concentrations were predicted at each of these receptor points for 24-hour and annual averaging periods. The highest 24-hour average for each receptor for each year was then tabulated and plotted as isopleths, and superimposed on the facility location and plant properly line (five isopleths, 1974 to 1978). The highest annual concentration for each receptor during the 5-year period was also tabulated and used to construct an isopleth representing the highest annual average over a 5-year period.

The 24-hour averaging period isopleths were then examined to determine the year for which highest impacts were predicted. That year was then modeled using a receptor array representing the plant property line (on 36 radials) and a point 200 ~~miles~~ meters beyond the property line on each of the 36 radials. The array of radial and range values defining the property line is shown in Table 3-5.

The sources, railcar loading, and No. 10 holding tank fill point were modeled as volume sources, because that most adequately represents the nature of the sources. The rural dispersion option selected as the site is located in undeveloped, flat, rural terrain and meets the criteria described by Auer (1978) in determining rural classification.

Settling velocities for each of the particle size classes were determined using Equation 2-42 from the ISCST Model Users Guide EPA 450/4-79-030. The equation is as follows:

$$V_s = 2\rho g r^2 / 9\mu$$

V_s = settling velocity, as cm/sec;
ρ = particle density, as gram per cubic meter (g/cm^3);
g = 980 cm/sec^2 (gravitational acceleration);
r = particle radius, as cm; and
μ = viscosity of air, 1.82×10^{-4} g/cm sec.

Table 3-5. Distance From Estech Phosphate Rock Loading Facility to Estech Property Line, Along 36 Radials

Radial (as degrees)	Source to Property Line feet (meters)
0	1,350
10	1,820
20	1,910
30	2,090
40	2,550
50	3,050
60	3,450
70	3,140
80	2,980
90	2,920
100	3,450
110	3,230
120	2,950
130	3,320
140	3,420
150	4,060
160	3,350
170	3,200
180	2,650
190	2,680
200	2,520
210	2,340
220	2,520
230	2,120
240	1,910
250	1,350
260	800
270	770
280	800
290	830
300	1,290
310	1,480
320	1,720
330	1,600
340	1,450
350	1,380

Source: ESE, 1986.

The density of phosphate rock is reported as 2.8 g/cm^3 (EPA, 1979). This density was used in all calculations.

Reflection coefficients for particles, as a function of the particle size class, were determined by reference to Figure 2-8 from the ISCST Model Users' Guide. Figure 2-8 is reproduced as Figure 3-10 in this report.

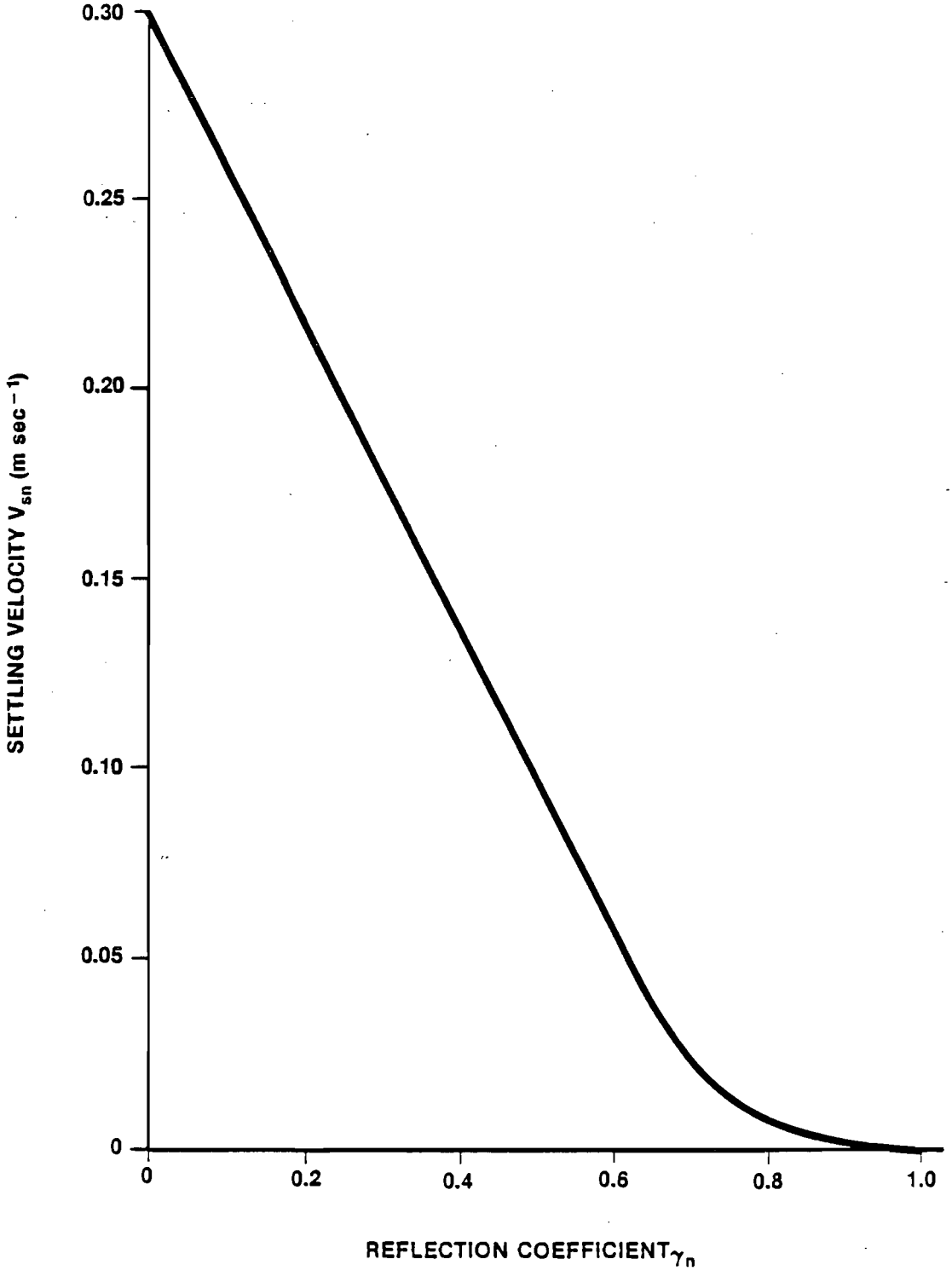

Figure 3-10
RELATIONSHIP BETWEEN THE GRAVITATIONAL SETTLING VELOCITY V_{sn} AND THE REFLECTION COEFFICIENT γ_n

SOURCES: DUMBAULD, 1976; ESE, 1986.

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4.0 RESULTS

The results of the modeling are summarized in Table 4-1. Table 4-1 lists the highest 24-hour impact (to 3 km) at each receptor. The highest 24-hour value per receptor per year was used to construct the series of five isopleths shown in Figures 4-1 through 4-5. Figure 4-6 shows the 5-year composite isopleth of 24-hour maximum impacts, as listed in Table 4-1. Figure 4-7 shows the maximum annual impact for each receptor, for the time period 1974 through 1978. Values used in the construction of Figure 4-7 are shown in Table 4-2. The annual isopleth is extremely conservative as it assumes 8,760 hours operation per year. The facility currently operates at well below 10 percent that level of operation.

The maximum 24-hour aveage and second highest 24-hour average impacts at the property line and maximum 24-hour average at 200 m beyond the property line (for the worst year, 1974) are tabulated in Table 4-3. The 24-hour average and annual composite tables from the dispersion modeling output are shown in Appendix B.

As shown in Figure 3-1, the photograph of actual sampling at the belt-to-hopper fugitive emissions discharge point, the particulate matter emissions follow a fairly steep trajectory to the ground, impacting close to the emission points. This is also shown, numerically, in the rapid decline in concentrations as a function of distance from the emission points.

The impacts predicted are due solely to the two sources of fugitive particulate emissions modeled. It could be assumed that any reduction in emissions could be used to prorate the estimated impacts in direct proportion to the efficiency claimed for a control device or in proportion to any reduction in material handling rates.

Table 4-1. Composite 5-Year Highest 24-Hour Values*, by Receptor, 1974 to 1978

Radial (degrees)	Receptor Range (meters)						
	150	200	300	500	700	1,500	3,000
360	600.1	433.6	267.5	140.0	90.4	30.8	11.3
350	766.5	556.7	340.1	175.6	112.4	37.6	13.5
340	704.7	505.3	302.6	152.9	96.3	30.9	10.6
330	810.5	603.8	379.9	203.3	132.8	45.9	17.0
320	718.7	531.9	332.1	176.3	114.7	39.4	14.4
310	675.5	493.4	304.0	158.0	101.6	34.3	12.4
300	777.1	561.4	345.0	183.5	119.5	41.1	15.1
290	561.7	398.1	235.2	116.8	72.9	22.9	7.8
280	1,005.7	744.9	466.5	248.0	161.2	55.6	20.6
270	920.0	677.0	420.0	220.8	142.8	48.6	17.7
260	884.5	654.3	409.0	217.2	141.1	44.8	16.4
250	869.2	644.9	404.0	214.8	139.9	48.1	17.7
240	688.7	494.4	296.8	150.1	94.5	30.7	11.3
230	638.1	458.7	276.2	140.4	89.0	28.9	10.1
220	561.8	405.2	246.0	126.4	80.7	26.7	9.5
210	608.9	441.8	270.0	140.2	90.4	30.7	11.3
200	565.9	417.2	259.4	137.0	88.7	30.3	11.1
190	649.6	465.7	284.9	148.5	95.5	32.1	11.6
180	850.4	617.1	375.9	193.1	122.9	40.5	14.4
170	730.1	529.3	322.9	166.2	106.1	35.4	12.7
160	506.9	373.5	231.9	122.1	78.9	26.8	9.7
150	301.1	225.5	143.1	77.2	50.5	17.6	6.6
140	536.8	384.7	230.9	116.5	73.3	23.8	8.3
130	455.2	323.3	191.9	95.8	60.0	19.1	6.5
120	464.3	337.4	206.6	106.6	68.3	22.7	8.1
110	510.7	363.1	215.2	107.6	67.5	21.5	7.8
100	654.5	480.1	297.3	155.0	99.9	34.0	12.4
90	663.5	490.8	306.9	163.4	106.4	36.8	13.7
80	892.9	659.3	410.6	216.7	140.5	48.0	17.5
70	693.1	515.8	324.2	173.3	113.2	39.2	14.5
60	415.7	295.7	176.0	88.3	55.3	17.6	6.1
50	612.8	452.4	281.7	149.2	96.9	33.2	12.2
40	795.8	589.5	368.8	195.6	127.2	43.7	16.1
30	632.9	454.4	273.4	138.5	87.3	28.4	10.0
20	484.1	359.9	226.7	121.2	79.0	27.4	10.2
10	696.6	498.6	299.2	150.9	95.1	31.0	10.9

*Impact values are taken to 3 km.

Source: ESE, 1986.

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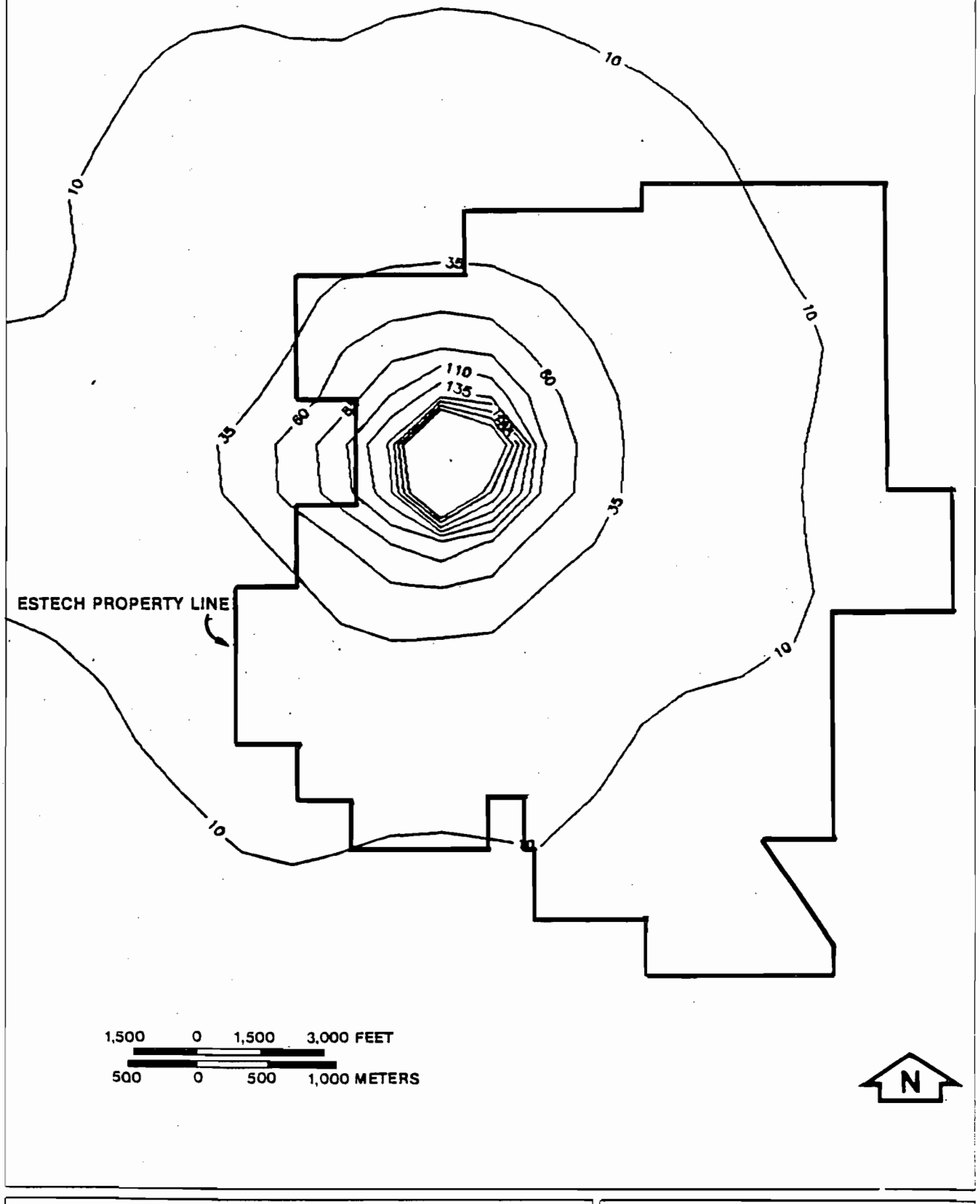

Figure 4-1
24-HOUR HIGH, 1974 METEOROLOGICAL DATA
(ug/m^3)

SOURCE: ESE, 1986.

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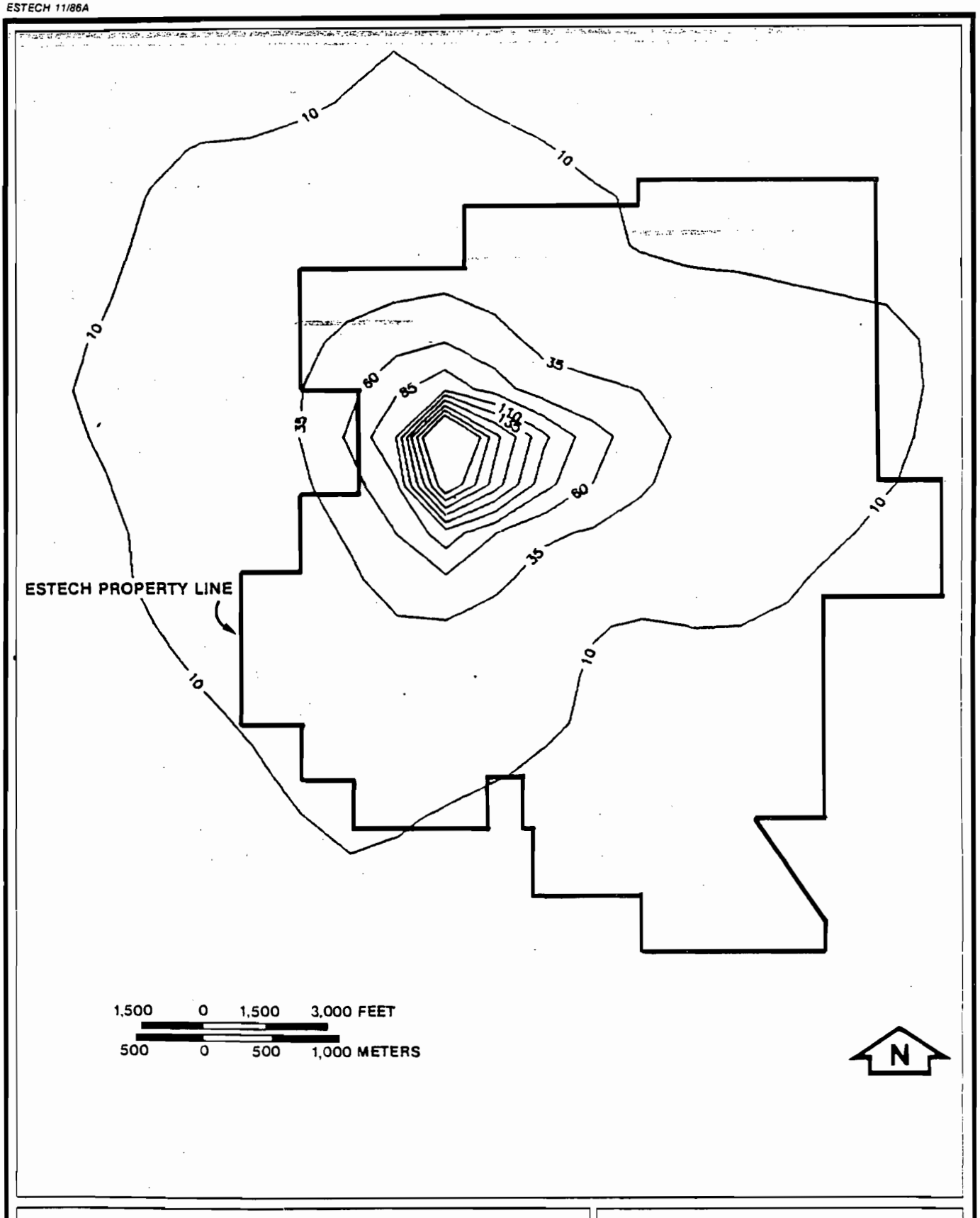

Figure 4-2
24-HOUR HIGH, 1975 METEOROLOGICAL DATA
(ug/m^3)

SOURCE: ESE, 1986.

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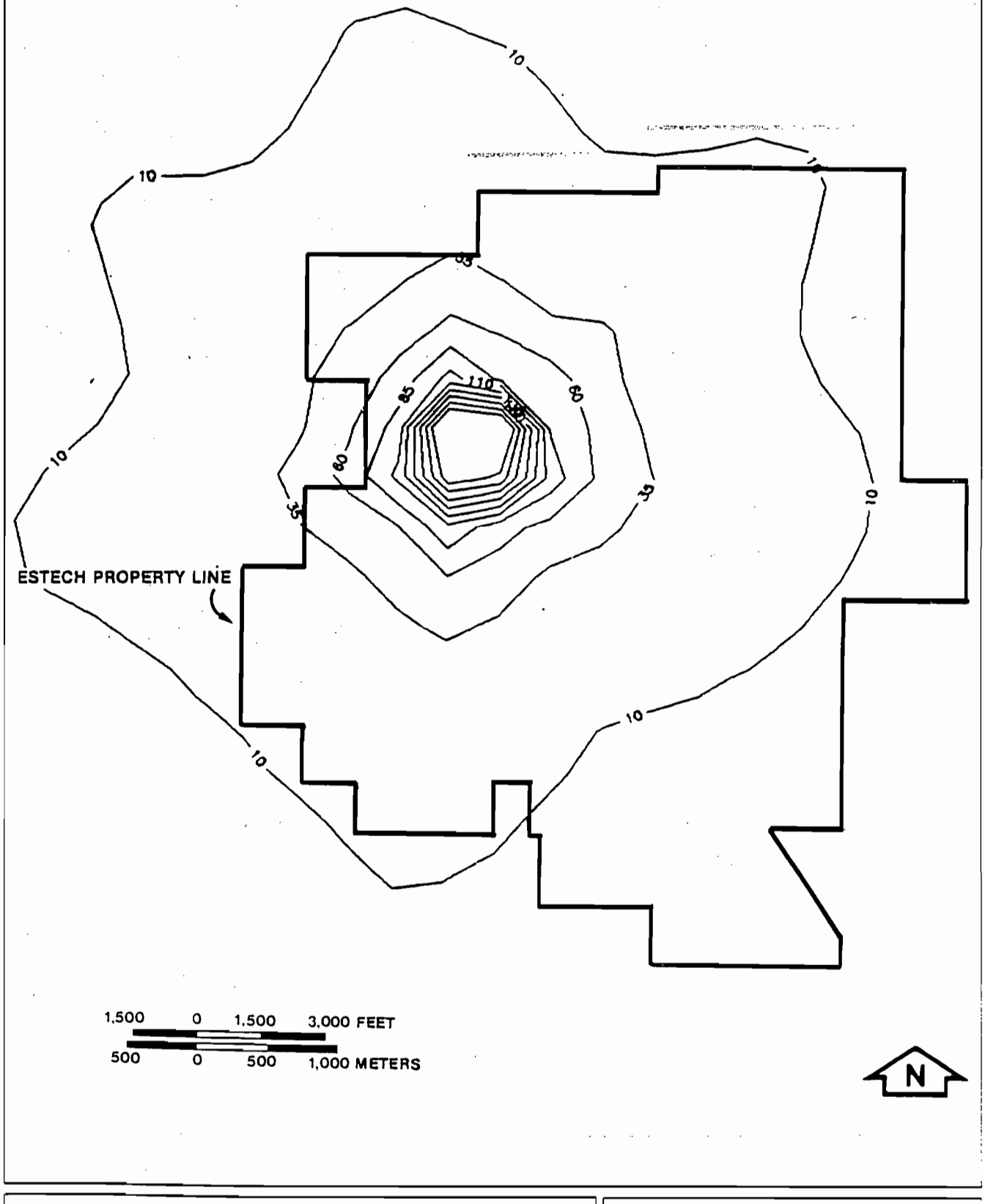

Figure 4-3
24-HOUR HIGH, 1976 METEOROLOGICAL DATA
(ug/m^3)

SOURCE: ESE, 1986.

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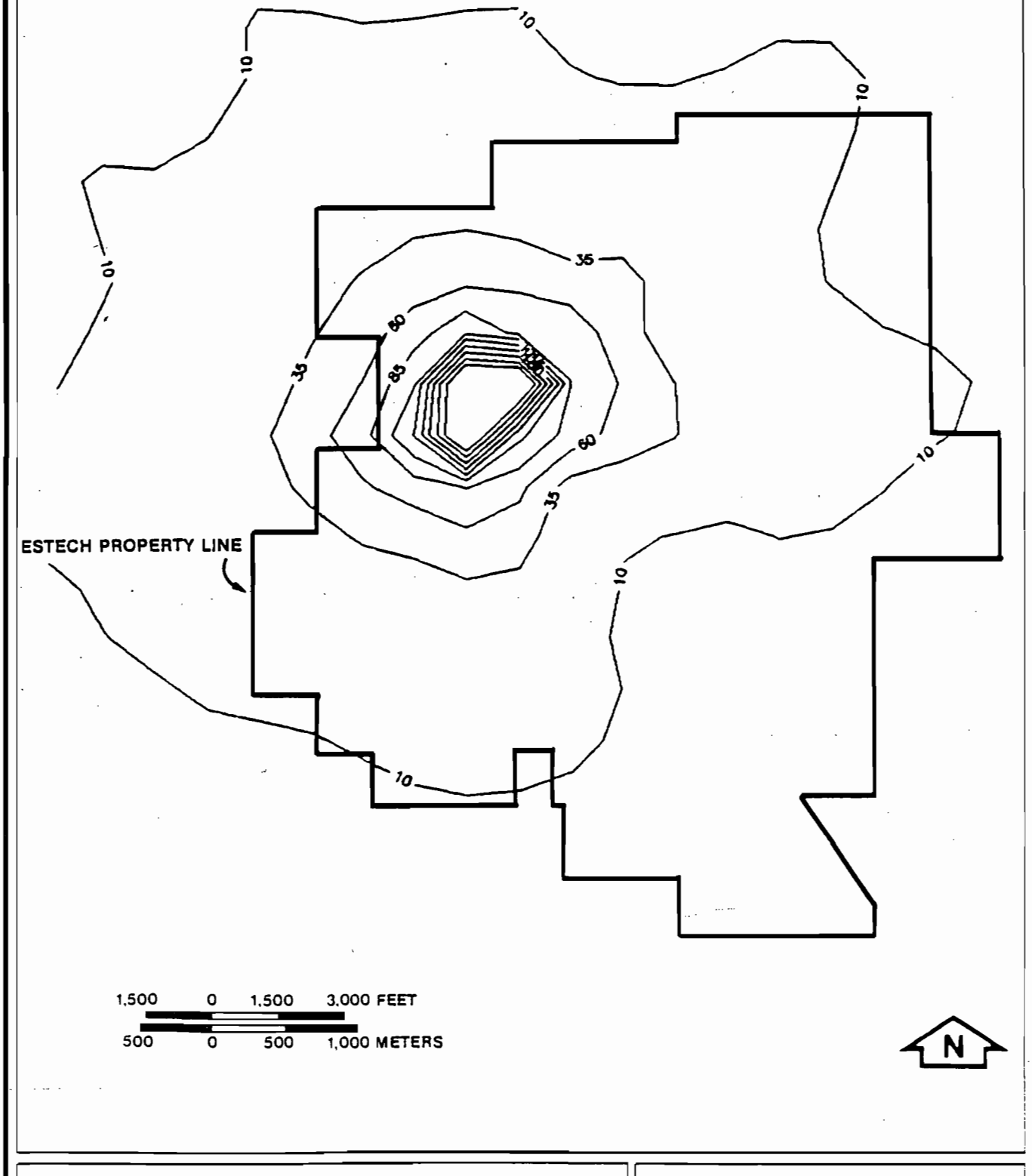

Figure 4-4
24-HOUR HIGH, 1977 METEOROLOGICAL DATA
(ug/m^3)

SOURCE: ESE, 1986.

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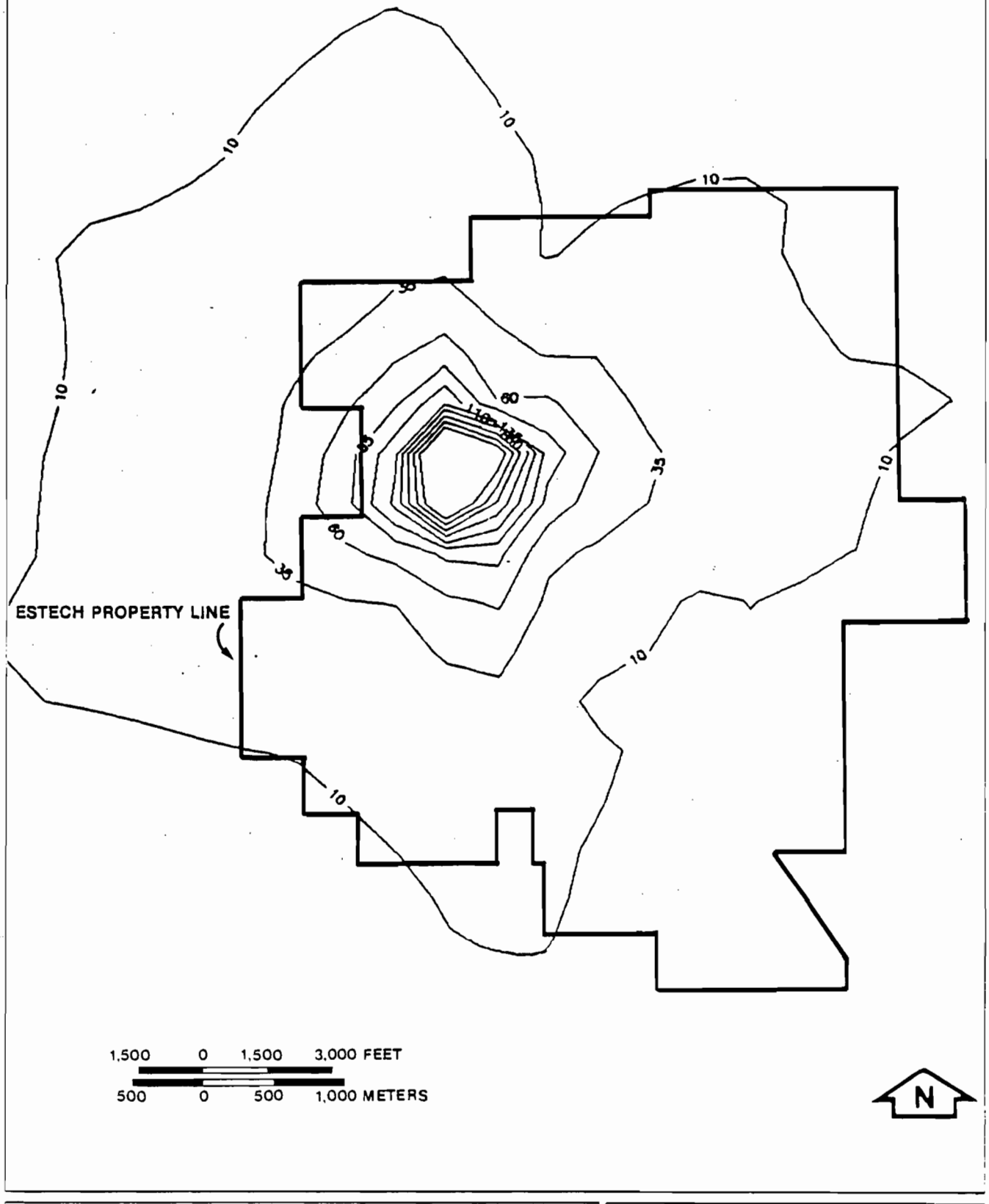

Figure 4-5
24-HOUR HIGH, 1978 METEOROLOGICAL DATA
(ug/m^3)

SOURCE: ESE, 1986.

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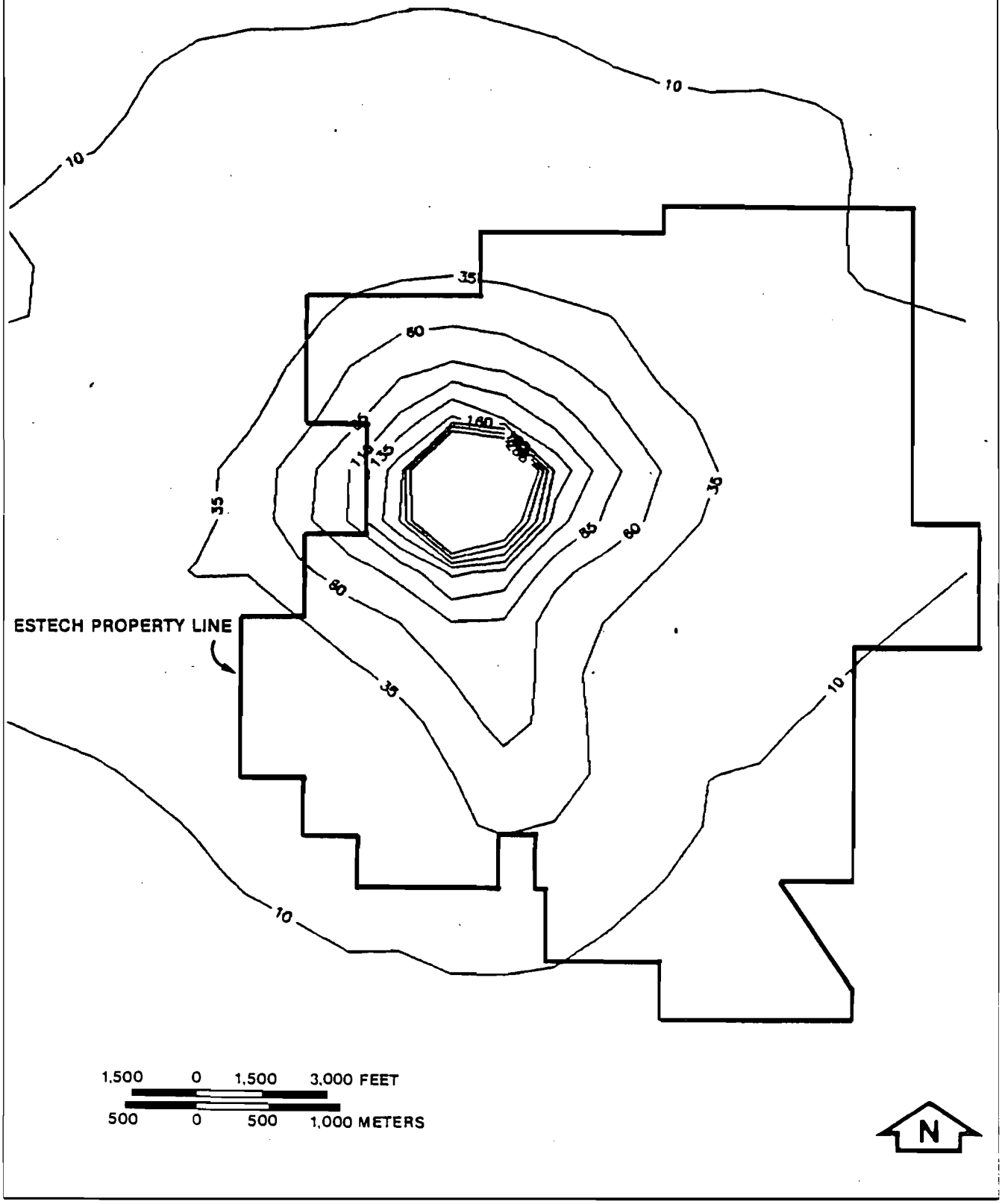

Figure 4-6
24-HOUR HIGH, COMPOSITE OF 1974-1978
METEOROLOGICAL DATA

SOURCE: ESE, 1986.

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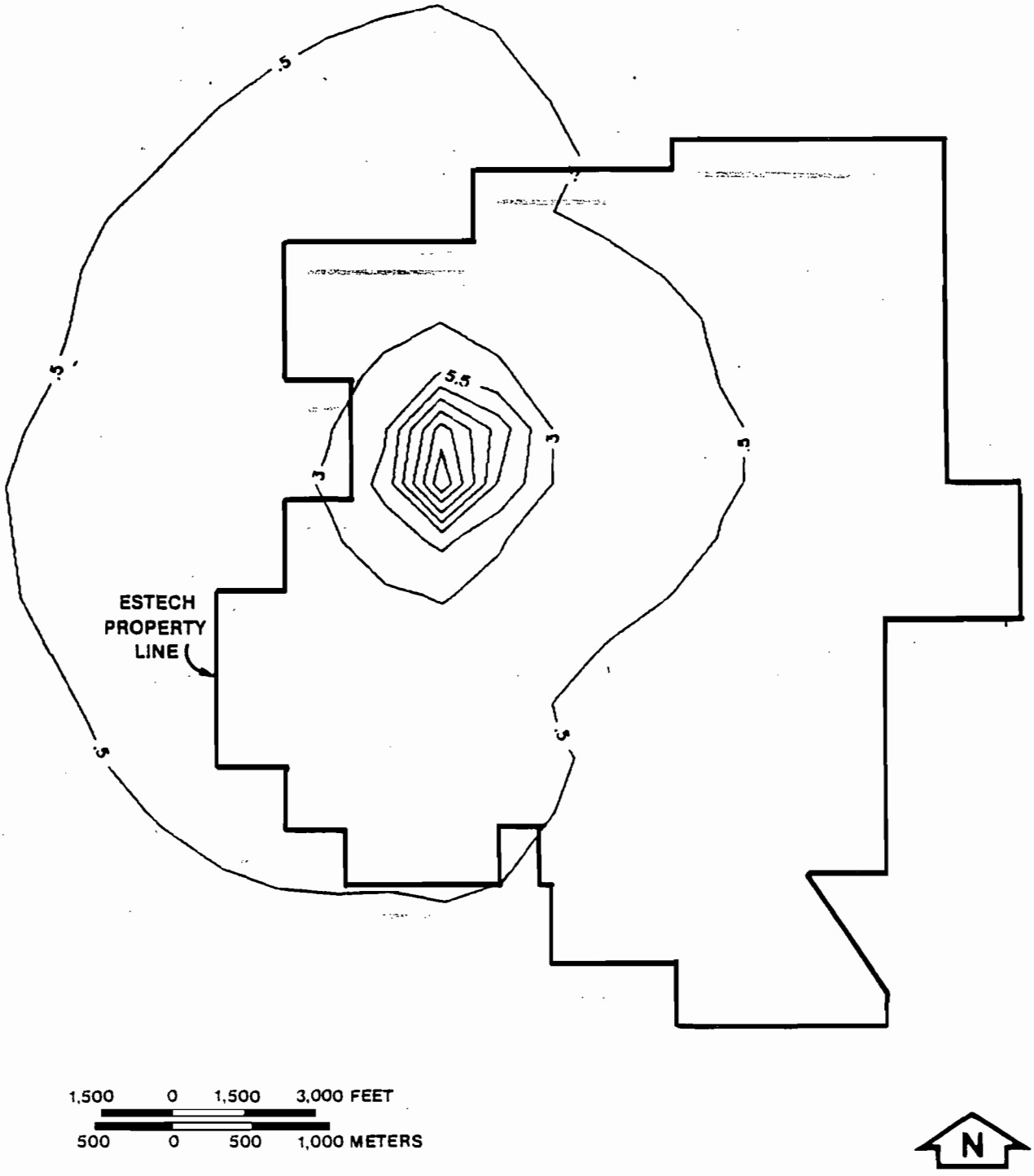

Figure 4-7
ANNUAL AVERAGE CONCENTRATION, 1974-1978 COMPOSITE (ug/m^3)

SOURCE: ESE, 1988.

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Table 4-2. Composite 5-Year Annual Averages*, by Receptor, 1974 to 1978

Radial (degrees)	Receptor Range (meters)						
	150	200	300	500	700	1,500	3,000
360	32.3	22.7	13.5	6.6	4.1	1.3	0.5
350	27.8	19.4	11.4	5.6	3.5	1.1	0.4
340	31.3	21.9	12.8	6.3	3.9	1.3	0.4
330	28.0	19.4	11.3	5.5	3.4	1.1	0.4
320	24.1	17.0	10.1	5.0	3.1	1.0	0.4
310	26.3	18.1	10.5	5.0	3.1	1.0	0.3
300	34.9	24.6	14.6	7.3	4.5	1.4	0.5
290	20.6	14.3	8.3	4.1	2.5	0.8	0.3
280	22.9	15.9	9.2	4.4	2.7	0.9	0.3
270	34.8	24.5	14.5	7.2	4.5	1.4	0.5
260	29.8	20.7	12.1	5.9	3.6	1.1	0.4
250	33.8	23.8	14.1	7.0	4.4	1.4	0.5
240	30.1	20.9	12.2	6.0	3.7	1.2	0.4
230	32.6	22.9	13.5	6.7	4.1	1.3	0.5
220	34.0	23.8	14.0	6.9	4.3	1.4	0.5
210	31.8	22.3	13.1	6.5	4.0	1.3	0.5
200	32.6	23.0	13.7	6.8	4.3	1.4	0.5
190	24.2	16.8	9.8	4.8	3.0	0.9	0.3
180	36.9	26.0	15.5	7.7	4.8	1.6	0.5
170	19.0	13.1	7.7	3.8	2.3	0.7	0.3
160	13.9	9.7	5.6	2.7	1.7	0.5	0.2
150	10.3	7.1	4.1	.9	1.2	0.4	0.1
140	11.5	7.9	4.6	2.2	1.3	0.4	0.1
130	12.6	8.7	5.0	2.4	1.4	0.4	0.2
120	16.7	11.6	6.8	3.3	2.0	0.6	0.2
110	15.3	10.7	6.3	3.1	1.9	0.6	0.2
100	12.9	8.9	5.1	2.5	1.5	0.5	0.2
90	17.5	12.4	7.4	3.7	2.3	0.8	0.3
80	13.2	9.1	5.2	2.5	1.5	0.5	0.2
70	15.7	10.8	6.2	3.0	1.8	0.6	0.2
60	15.6	10.9	6.3	3.1	1.9	0.6	0.2
50	16.4	11.5	6.8	3.4	2.1	0.7	0.2
40	15.7	11.0	6.5	3.2	2.0	0.6	0.2
30	14.4	10.0	5.8	2.8	1.7	0.5	0.2
20	13.4	9.2	5.4	2.6	1.6	0.5	0.2
10	20.3	14.1	8.1	3.9	2.4	0.8	0.3

*Averages are taken to 3 km.

Source: ESE, 1986.

Table 4-3. Maximum Predicted 24-Hour Impacts at Property Line and 200 Meters Beyond Property Line, 1974

Radial (degrees)	Range to Property Line (meters)	Maximum Impact ($\mu g/m^3$)	Highest Second Highest Impact ($\mu g/m^3$)	Range to Property Line, plus 200 (meters)	Maximum Impact ($\mu g/m^3$)
10	1,820	23.4	22.8	2,020	19.9
20	1,910	19.5	4.9	2,110	16.9
30	2,090	17.4	15.6	2,290	15.1
40	2,550	11.4	5.8	2,750	10.3
50	3,050	7.3	5.3	3,250	6.7
60	3,450	4.9	3.8	3,650	4.5
70	3,140	8.6	5.3	3,340	7.8
80	2,980	5.3	3.6	3,180	4.8
90	2,920	4.7	2.8	3,120	4.2
100	3,450	5.2	4.4	3,650	4.8
110	3,230	5.9	3.0	3,430	5.4
120	2,950	8.1	7.2	3,150	7.3
130	3,320	5.6	4.4	3,520	5.1
140	3,420	2.0	1.1	3,620	1.8
150	4,060	4.2	2.6	4,260	3.9
160	3,350	4.6	4.5	3,550	4.2
170	3,200	8.9	4.8	3,400	8.1
180	2,650	7.6	7.2	2,850	6.8
190	2,680	5.8	5.7	2,880	5.2
200	2,520	12.8	9.1	2,720	11.6
210	2,340	16.2	14.5	2,540	14.3
220	2,520	12.3	9.0	2,720	11.0
230	2,120	17.2	14.1	2,320	15.0
240	1,910	17.2	11.9	2,110	14.8
250	1,350	34.3	34.1	1,550	28.3
260	800	109.5	42.8	1,000	80.5
270	770	125.5	83.8	970	91.5
280	800	134.9	82.8	1,000	99.5
290	830	49.2	42.2	1,030	35.8
300	1,290	41.0	37.9	1,490	32.9
310	1,480	35.0	12.7	1,680	29.4
320	1,720	32.7	27.7	1,920	27.8
330	1,600	42.6	9.2	1,800	35.8
340	1,450	27.6	19.6	1,650	22.9
350	1,380	37.9	24.8	1,580	31.4
360	1,350	36.0	34.7	1,550	29.8

Note: $\mu g/m^3$ = micrograms per cubic meter.

Source: ESE, 1986.

APPENDIX A

PARTICLE DATA LABORATORIES, LTD.

115 Hahn Street • Elmhurst, Illinois 60126 • (312) 832-5658

BASIC ELECTROZONE TECHNOLOGY

AND

EXPLANATION OF REPORT

The electric sensing zone analytical technique has developed rapidly over the past twenty years. In this technique, particles suspened in a conductive fluid, flow serially through an orifice under a differential pressure. Electrodes are immersed on each side of the orifice as shown in Figure 1. As each particle passes through the aperture, it replaces its own volume of electrolyte within the aperture, momentarily changing the resistance value between the electrodes. This change produces a voltage pulse of short duration having a magnitude proportional to particle volume. The resulting series of pulses is electronically amplified, scaled and counted. Raw data processing is performed by a PDP-1103 minicomputer in such a manner that a population histogram of 128 or 256 channels of information can be acquired. Acquired data is conditioned by applying calibration, extrapolation, volume (weight) or area conversions. Normalization of size and quantity axes to the types of scales required by the researcher is also possible.

The conductive particle suspension medium is an important consideration in Electrozone technology. Typically, aquesous isotonic saline (0.9% by weight) or a 4% by weight sodium pyrophosphate is used as a dispersing and particle suspension medium. For certain analyses which cannot be run in an aqueous media, 4% weight/volume lithium chloride in isopropyl alcohol is effective.

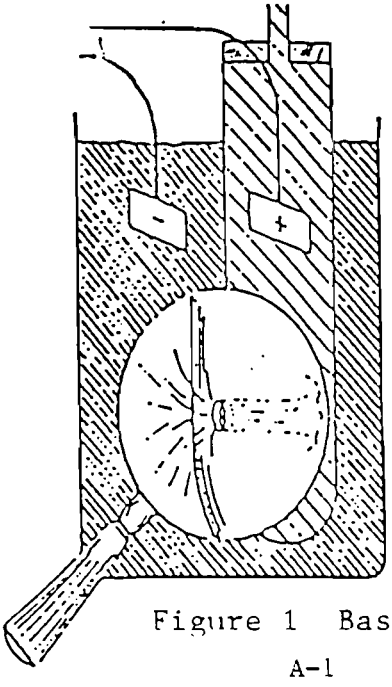


Figure 1 Basic Dectection Mechanism

Figure IIA is a cross section of the orifice shown in Figure 1. In this configuration, no particle is shown in the orifice. Since a constant current is established in the conductive liquid and through the sapphire orifice, a constant voltage potential is represented as the product of the current (I) and Resistance (R).

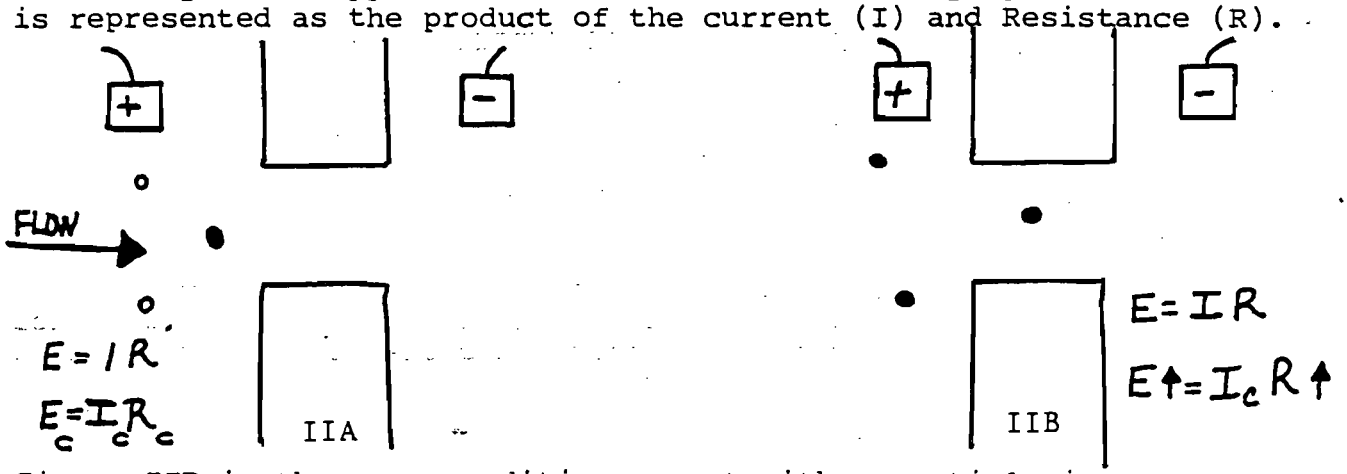


Figure IIB is the same condition except with a particle in the orifice or sensing zone. Since almost all particles act as insulators, the electrical resistance increases in the orifice. Under the conditions of a constant current and increased resistance the product of these two must rise according to Ohm's Law. Since the particles traverse the orifice in about 20 micro seconds, a voltage pulse is produced. The magnitude of this voltage pulse is proportional to the envelope volume of the particle. That is, a small particle yeilds a small voltage pulse while a large particle yeilds a large pulse. The particle may be irregular in shape (spheres are seldom encountered), but since the volume of that particle has been measured, the diameter of a sphere of equal volume can be assigned to that particle. This method of expressing data as the "Diameter of a Sphere of Equal Volume" is used throughout all of "Fine Particle Technology."

Now that we have a way of measuring discrete events very rapidly and accurately, all we have to do is to present a representative population to the detector. The technologist must sample the powder in a meaningful manner and he must disperse the powder so that only individual particles are monitored by the instrument. When all of these conditions have been met, the suspension is analyzed by counting and sizing no fewer than fifty thousand particles of the sample. Since the accuracy and precision of the measurement is effected by the sample size, we elect to count such a high number of particles. When a preset number of particles has been acquired, the computer stops the analysis. At this point pertinent calibration information is added from the keyboard and the frequency (population) statistics are generated. the information is then converted to a volume (mass) basis and these statistics are reported.

There are two classic methods of fine particle size analysis:

1. Frequency Distribution (Microscope Counting)

2. Mass Distribution (Sieves of Andreason sedimentation)

In the first method, the number of particles of a specific size are tabulated by the microscopist. He scans a microscope slide while randomly searching for a particle in the prepared slide. When one is located, it is sized using an eyepiece micrometer and counted as a frequency of occurrence. Soon a frequency distribution is established for the sample of interest. The microscopist can now calculate the relative percent of particles within a given size interval or he can sum the data and report the percentage greater than an indicated size. Table I is a brief example of this precedure. Following the statistical treatment, he can plot the data to locate the geometric median diameter and then derive other statistical parameters.

Table I

Example of Frequency Distribution Data

(μm) Particle Size Interval	d Mid Size	N Frequency of Occurance	N≥ Cumulative Frequency	Cumulative Frequency ≥Indicated%
1.0 - 1.4	1.2	10	100	100
1.4 - 2.0	1.7	15	90	90
2.0 - 2.8	2.4	50	75	75
2.8 - 4.0	3.2	15	25	25
4.0 - 5.6	4.8	10	10	10

What this data indicates is that 100% of the data measured is greater than or equal to 1.0 microns. Ninety percent is greater that 1.4 microns diameter. This information when plotted on log-probability paper will yield a straight line if the distribution is truly log normal (most sample are). Once that data is plotted many statistical parameters are available to the analyst from standard formulas.

The second method of analysis is performed by a standard sieving technique. In this method, a known weight of dry sample is passed through nested precision sieves and the weight percent retained on each sieve size is calculated. Data is handled as above in Table I except data is expressed on a weight basis.

Since the Elzone technique determines the volume of individual particles, we can convert frequency data directly into mass or into area. It is part of the job of the technologist to determine which data format is appropriate to his application.

The Elzone data report is broken down as follows:

Page	Description
1	Frequency and Volume (Mass) Statistics
2	Plot of Differential Frequency Distribution
3	Tabulation of Channel Number, Diameter and Count (Number of particles at that size)
4	Plot of Differential Mass Distribution
5	Tabulation of Channel Number, Diameter and mass (relative units at that size)

Each page will be described below:

Page 1

The top section of this page is devoted to the volume (mass) statistics. The definitions of the terms used are as follows:

Volume Mode - The diameter size in microns of a spherical particle that contains the largest total mass value. It is always the peak of a distribution curve.

Volume Median - That point in the distribution curve that splits the data into two equal areas. One half is larger and one half is smaller than the indicated size on a mass basis.

Geometric Volume Mean - The size of an average particle calculated on a log basis.

Arithmetic Volume Mean - The size of an average particle calculated on an arithmetic scale.

+/-XXX - One sigma interval of standard deviation

(XX.XXX) - Coefficient of variation. This is the Standard Deviation divided by the Mean mulitplied by 100 to yield percentage.

Skewness - This term denotes symmetry. If the curve is perfectly Gaussian, geometric skewness will be 0.00. If the curve is biased towards the fines, skewness will be negative.

For Plotting on Log Probability Paper -
This data is presented at 0.77 sigma intervals across a normal curve. It expresses the percent of mass at or greater than the indicated size from a cumulative curve.

The bottom of this page is just like the top except that it expresses the statistics on a frequency (count) basis.

Remember that the frequency basis will always be smaller than mass basis because the mass data rises as a function of the diameter cubed. It takes one million one micron diameter particles by count to equal the same mass as a single one hundred micron diameter particle.

Page 2

This page is a plot of the frequency distribution as a function of size. Each plus (+) represents a specific number of particles at a given size. The size scale is a log scale because a Gaussian curve plotted on a arithmetic scale would be skewed towards the larger sizes. Typically, data is plotted on a log scale.

Page 3

This is the "Tabulation" page by frequency (count). The number after "Total =" represents the number of particles counted in a particular analysis. This number is usually modified by some factor so that the graph routine will be represented as a full scale plot. The tabulation informs the client how may particles (count) he could expect to find at any indicated micron size if he had counted the number of particles indicated under "Total In Tabulation".

Page 4

This page is a plot of the mass (volume) distribution mathematically derived from the count (frequency) distribution. It reveals the distribution of mass as a function of particle size. Usually, this data is more relevant as to a particular industrial process.

Page 5

The last page in your report is a tabulation of data in a mass (volume) format. It is exactly like the count tabulation except that it informs us of the relative mass (grams, micrograms, pounds or tons) of material at each micron size if you had a pile of material weighing the same as that figure displayed under "Total =".

PARTICLE DATA LABORATORIES, LTD.

115 Hahn Street • Elmhurst, Illinois 60126 • (312) 832-5658

October 1, 1986

Environmental Science and Engineering, Inc.
P. O. Box ESE
Gainesville, Florida 32602

Attention: Mr. Mark G. Hodges

Subject: Electrozone Analysis - 4 Samples - P. O. # 15584

PDL Project: I-10850

Gentlemen:

Enclosed please find a copy of the computerized data printout of your sample as generated by the Electrozone Analyzer. If you have any questions, please do not hesitate to call us at Particle Data Laboratories.

It has been a pleasure serving your company, and we look forward to serving you again in the near future.

Respectfully submitted,

PARTICLE DATA LABORATORIES, LTD.

Kirsten Bolda

Kirsten Bolda
Technical Staff

PO:lrc

Enc.

PARTICLE SIZE ANALYSIS BY ELZONE METHOD—PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 29 SEP 86 :DATE
SAMPLE: PLATFORM 10850 : JOB NUMBER

VOLUME (MASS) DISTRIBUTION FROM DISPLAY AREA: 4

INDICES

VOLUME MODE = 6.23 MEDIAN = 6.23 MICRONS AND LARGER

GEOMETRIC VOLUME MEAN = 6.15 +/- 11.19 (182.07%) SKEWNESS = -.01

ARITHMETIC VOLUME MEAN = 10.52 +/- 13.64 (129.59%) SKEWNESS = .32

FOR PLOTTING PROBABILITY ON LOG PAPER:

PERCENTILE: 00.1% OF VOLUME IS AT 109.99 MICRONS AND LARGER 99.9
PERCENTILE: 01.0% OF VOLUME IS AT 74.02 MICRONS AND LARGER 99
PERCENTILE: 06.0% OF VOLUME IS AT 31.90 MICRONS AND LARGER 94
PERCENTILE: 22.0% OF VOLUME IS AT 13.08 MICRONS AND LARGER 78
PERCENTILE: 50.0% OF VOLUME IS AT 6.23 MICRONS AND LARGER 50
PERCENTILE: 78.0% OF VOLUME IS AT 2.82 MICRONS AND LARGER 22
PERCENTILE: 94.0% OF VOLUME IS AT 1.16 MICRONS AND LARGER 6
PERCENTILE: 99.0% OF VOLUME IS AT .55 MICRONS AND LARGER 1
PERCENTILE: 99.9% OF VOLUME IS AT .41 MICRONS AND LARGER 0.1

COUNT (FREQUENCY) DISTRIBUTION FROM DISPLAY AREA: 5

INDICES

COUNTS MODE = .41 MEDIAN = .61 MICRONS AND LARGER

GEOMETRIC COUNTS MEAN = .70 +/- .46 (65.26%) SKEWNESS = .64

ARITHMETIC COUNTS MEAN = .83 +/- .72 (86.43%) SKEWNESS = .59

FOR PLOTTING PROBABILITY ON LOG PAPER:

PERCENTILE: 00.1% OF COUNTS IS AT 7.59 MICRONS AND LARGER
PERCENTILE: 01.0% OF COUNTS IS AT 3.80 MICRONS AND LARGER
PERCENTILE: 06.0% OF COUNTS IS AT 1.81 MICRONS AND LARGER
PERCENTILE: 22.0% OF COUNTS IS AT .95 MICRONS AND LARGER
PERCENTILE: 50.0% OF COUNTS IS AT .61 MICRONS AND LARGER
PERCENTILE: 78.0% OF COUNTS IS AT .47 MICRONS AND LARGER
PERCENTILE: 94.0% OF COUNTS IS AT .41 MICRONS AND LARGER
PERCENTILE: 99.0% OF COUNTS IS AT .41 MICRONS AND LARGER
PERCENTILE: 99.9% OF COUNTS IS AT .41 MICRONS AND LARGER

PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 29 SEP 86 :DATE
SAMPLE: PLATFORM 10850 : JOB NUMBER

PARTICLE SIZE VS. COUNTS
ENCLOSING
LOW AT 1 .41 4000000 HIGH AT 107 77.78 1

GRAPH OF DIAMETER SIZES VS. DIFFERENTIAL COUNTS FROM CHANNEL 1 TO 107, AND SKIP: 2

% MAX	SIZE	0 10 20 30 40 50 60 70 80 90 100
95.4	.41	
79.5	.47	
65.4	.55	
53.3	.64	
42.8	.74	
34.0	.86	
24.9	1.00	
19.2	1.16	
15.0	1.34	
10.4	1.56	
8.3	1.81	
6.2	2.10	
4.4	2.43	
3.2	2.82	
2.3	3.27	
1.8	3.80	
1.3	4.40	
.9	5.11	
.6	5.93	
.4	6.87	
.2	7.98	
.1	9.25	
.1	10.73	
.0	12.45	
.0	14.45	
.0	16.76	
.0	19.44	
.0	22.56	
.0	26.17	
.0	30.36	
.0	35.22	
.0	40.86	
.0	47.41	
.0	55.00	
.0	63.80	
.0	74.02	
% MAX	SIZE	0 10 20 30 40 50 60 70 80 90 100

PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 29 SEP 86 :DATE
SAMPLE: PLATFORM 10850 : JOB NUMBER

"TOTAL IN TABULATION= TOTAL COUNT OR VOLUME IN ANALYSIS
TABULATION

DATA ID 10850 DATE 28 SEP
SIZE-NORMALIZED COUNTS DISTRIBUTION
TOTAL =54957842

CHNL	SIZE	COUNTS	% >	CHNL	SIZE	COUNTS	% >	CHNL	SIZE	COUNTS	% >
1	.41	4000000	100.00	37	2.43	183088	3.15	73	14.45	945	.01
2	.43	3769164	92.72	38	2.55	166472	2.81	74	15.18	783	.01
3	.45	3546981	85.86	39	2.68	146147	2.51	75	15.95	633	.01
4	.47	3333498	79.41	40	2.82	132449	2.25	76	16.76	540	.01
5	.50	3128705	73.34	41	2.96	116922	2.00	77	17.61	445	.00
6	.52	2931812	67.65	42	3.11	105217	1.79	78	18.50	384	.00
7	.55	2744838	62.32	43	3.27	95313	1.60	79	19.44	305	.00
8	.58	2566240	57.32	44	3.44	90215	1.43	80	20.43	251	.00
9	.61	2396004	52.65	45	3.61	79063	1.26	81	21.47	209	.00
10	.64	2234067	48.29	46	3.80	73914	1.12	82	22.56	173	.00
11	.67	2080306	44.23	47	3.99	67133	.98	83	23.70	139	.00
12	.70	1934562	40.44	48	4.19	59933	.86	84	24.91	112	.00
13	.74	1796649	36.92	49	4.40	54033	.75	85	26.17	97	.00
14	.78	1666367	33.65	50	4.63	48092	.66	86	27.50	80	.00
15	.82	1543495	30.62	51	4.86	44197	.57	87	28.89	69	.00
16	.86	1427799	27.81	52	5.11	39249	.49	88	30.36	55	.00
17	.90	1303426	25.21	53	5.37	35017	.42	89	31.90	44	.00
18	.95	1179996	22.84	54	5.64	30469	.35	90	33.52	33	.00
19	1.00	1043131	20.70	55	5.93	26397	.30	91	35.22	26	.00
20	1.05	968128	18.80	56	6.23	22955	.25	92	37.01	19	.00
21	1.10	879086	17.04	57	6.54	19580	.21	93	38.89	15	.00
22	1.16	805683	15.44	58	6.87	16553	.17	94	40.86	11	.00
23	1.22	754255	13.97	59	7.22	13516	.14	95	42.94	10	.00
24	1.28	638525	12.60	60	7.59	11206	.12	96	45.12	7	.00
25	1.34	628865	11.44	61	7.98	9298	.10	97	47.41	6	.00
26	1.41	571238	10.29	62	8.38	7464	.08	98	49.81	4	.00
27	1.48	527608	9.25	63	8.81	6114	.07	99	52.34	3	.00
28	1.56	437387	8.29	64	9.25	5167	.05	100	55.00	3	.00
29	1.64	388968	7.50	65	9.72	4332	.05	101	57.79	3	.00
30	1.72	374337	6.79	66	10.22	3561	.04	102	60.72	1	.00
31	1.81	349799	6.11	67	10.73	2917	.03	103	63.80	1	.00
32	1.90	302123	5.47	68	11.28	2446	.03	104	67.04	1	.00
33	1.99	284079	4.92	69	11.85	2052	.02	105	70.44	1	.00
34	2.10	260764	4.40	70	12.45	1637	.02	106	74.02	1	.00
35	2.20	228678	3.93	71	13.08	1322	.01	107	77.78	1	.00
36	2.31	201303	3.51	72	13.75	1136	.01				

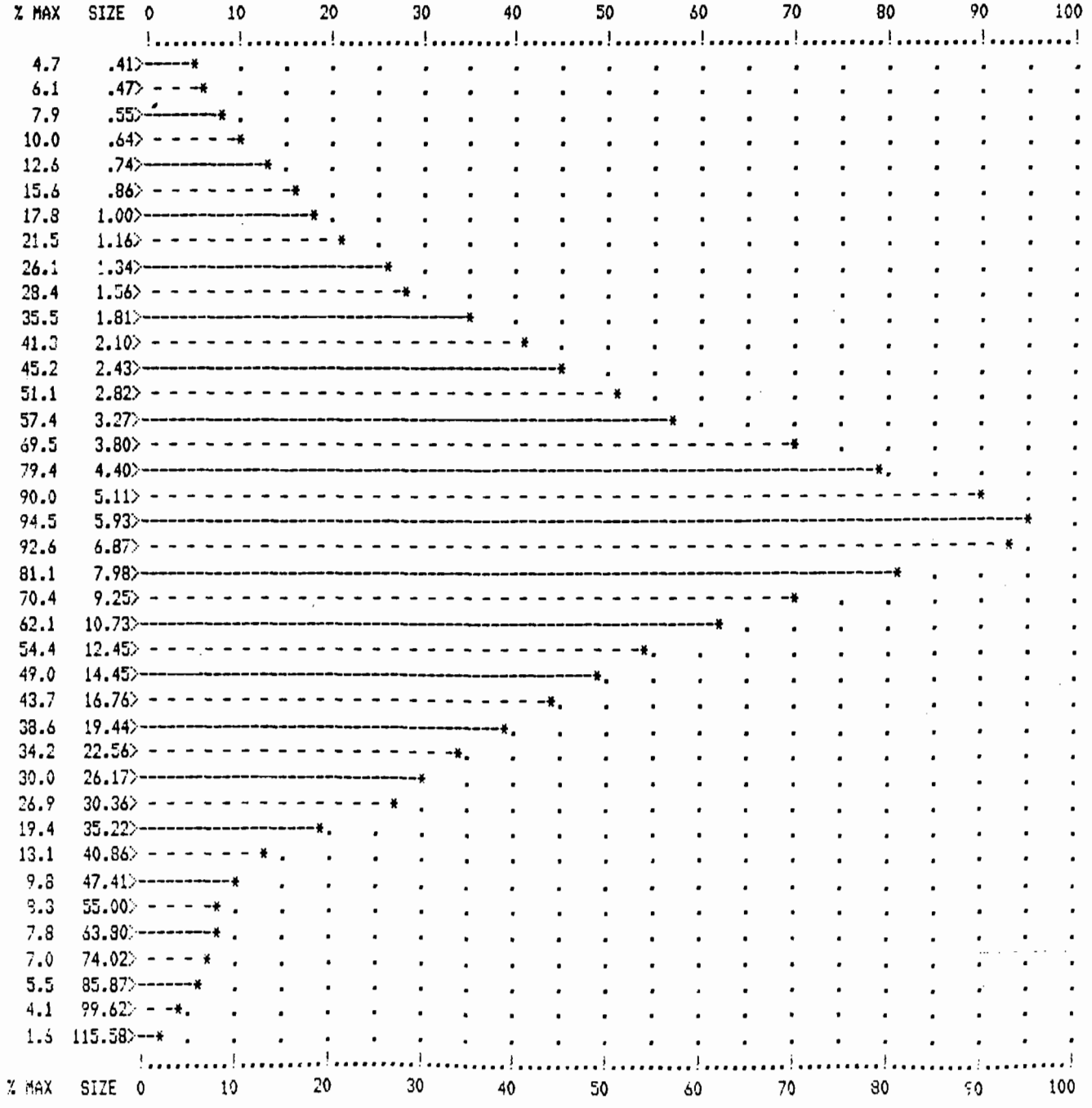
DISPLAY AREA: 4

PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 29 SEP 86 :DATE
SAMPLE: PLATFORM 10850 : JOB NUMBER

PARTICLE SIZE VS. VOLUME
ENCLOSING
LOW AT 1 .41 197425 HIGH AT 116 121.44 42682

GRAPH OF DIAMETER SIZES VS. DIFFERENTIAL VOLUME FROM CHANNEL 1 TO 116, AND SKIP: 2



PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 29 SEP 86 :DATE
SAMPLE: PLATFORM 10850 : JOB NUMBER

"TOTAL IN TABULATION= TOTAL COUNT OR VOLUME IN ANALYSIS
TABULATION

DATA ID 10850 DATE 28 SEP
SIZE-NORMALIZED VOLUME DISTRIBUTION
TOTAL =72523215

CHNL	SIZE	VOLUME	% >	CHNL	SIZE	VOLUME	% >	CHNL	SIZE	VOLUME	% >
1	.41	197425	100.00	40	2.82	2143602	79.04	79	19.44	1620538	14.03
2	.43	215821	99.89	41	2.96	2195306	77.80	80	20.43	1543053	13.09
3	.45	235621	99.76	42	3.11	2291874	76.53	81	21.47	1493593	12.19
4	.47	256898	99.62	43	3.27	2408544	75.20	82	22.56	1432458	11.33
5	.50	279726	99.47	44	3.44	2644659	73.80	83	23.70	1330717	10.50
6	.52	304182	99.31	45	3.61	2688709	72.27	84	24.91	1249474	9.72
7	.55	330339	99.14	46	3.80	2915709	70.71	85	26.17	1258745	9.00
8	.58	358273	98.95	47	3.99	3071588	69.02	86	27.50	1197118	8.27
9	.61	388056	98.74	48	4.19	3182795	67.24	87	28.89	1213739	7.58
10	.64	419760	98.51	49	4.40	3329012	65.39	88	30.36	1129033	6.87
11	.67	453456	98.27	50	4.63	3437450	63.46	89	31.90	1047986	6.22
12	.70	489210	98.01	51	4.86	3664795	61.47	90	33.52	911430	5.61
13	.74	527087	97.72	52	5.11	3775669	59.35	91	35.22	814081	5.08
14	.78	567148	97.42	53	5.37	3908026	57.16	92	37.01	728678	4.61
15	.82	609449	97.09	54	5.64	3945003	54.89	93	38.89	623552	4.19
16	.86	654042	96.74	55	5.93	3964955	52.61	94	40.86	548292	3.83
17	.90	692678	96.36	56	6.23	4000000	50.31	95	42.94	522840	3.51
18	.95	727499	95.95	57	6.54	3958325	47.99	96	45.12	460519	3.21
19	1.00	746100	95.53	58	6.87	3881976	45.70	97	47.41	409070	2.94
20	1.05	803336	95.10	59	7.22	3676821	43.45	98	49.81	378292	2.70
21	1.10	846257	94.63	60	7.59	3536619	41.32	99	52.34	333723	2.48
22	1.16	899791	94.14	61	7.98	3403142	39.27	100	55.00	349577	2.29
23	1.22	1085825	93.62	62	8.38	3170648	37.29	101	57.79	315614	2.09
24	1.28	959773	92.99	63	8.81	3013504	35.45	102	60.72	322504	1.90
25	1.34	1096616	92.44	64	9.25	2954682	33.71	103	63.80	326829	1.72
26	1.41	1155634	91.80	65	9.72	2873617	32.00	104	67.04	350007	1.53
27	1.48	1238283	91.13	66	10.22	2741309	30.33	105	70.44	326315	1.33
28	1.56	1190907	90.41	67	10.73	2604206	28.74	106	74.02	292447	1.14
29	1.64	1228641	89.72	68	11.28	2534458	27.23	107	77.78	274860	.97
30	1.72	1371718	89.01	69	11.85	2465563	25.76	108	81.72	248751	.81
31	1.81	1486954	88.22	70	12.45	2282564	24.33	109	85.87	231008	.66
32	1.90	1489743	87.35	71	13.08	2138330	23.01	110	90.23	175440	.53
33	1.99	1624694	86.49	72	13.75	2132277	21.77	111	94.81	159864	.43
34	2.10	1731017	85.55	73	14.45	2056991	20.53	112	99.62	170928	.33
35	2.20	1761102	84.55	74	15.18	1975452	19.34	113	104.68	155973	.24
36	2.31	1798537	83.53	75	15.95	1853084	18.20	114	109.99	140027	.15
37	2.43	1897718	82.48	76	16.76	1838661	17.12	115	115.58	67783	.06
38	2.55	2001810	81.38	77	17.61	1755888	16.06	116	121.44	42682	.02
39	2.68	2038814	80.22	78	18.50	1754722	15.04				

PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC, 27 SEP 86 :DATE
SAMPLE: BELT CONVEYOR ANDTRIPPER 10850 : JOB NUMBER

VOLUME (MASS) DISTRIBUTION FROM DISPLAY AREA: 4

INDICES

VOLUME MODE = 9.31 MEDIAN = 6.30 MICRONS AND LARGER

GEOMETRIC VOLUME MEAN = 5.74 +/- 8.23 (143.38%) SKEWNESS = -.43

ARITHMETIC VOLUME MEAN = 8.13 +/- 6.75 (83.12%) SKEWNESS = -.18

FOR PLOTTING PROBABILITY ON LOG PAPER:

PERCENTILE:	00.1%	OF VOLUME IS AT	37.24 MICRONS AND LARGER	99.9
PERCENTILE:	01.0%	OF VOLUME IS AT	32.70 MICRONS AND LARGER	99
PERCENTILE:	06.0%	OF VOLUME IS AT	21.20 MICRONS AND LARGER	94
PERCENTILE:	22.0%	OF VOLUME IS AT	11.56 MICRONS AND LARGER	78
PERCENTILE:	50.0%	OF VOLUME IS AT	6.30 MICRONS AND LARGER	50
PERCENTILE:	78.0%	OF VOLUME IS AT	2.89 MICRONS AND LARGER	22
PERCENTILE:	94.0%	OF VOLUME IS AT	1.27 MICRONS AND LARGER	6
PERCENTILE:	99.0%	OF VOLUME IS AT	.58 MICRONS AND LARGER	1
PERCENTILE:	99.9%	OF VOLUME IS AT	.39 MICRONS AND LARGER	0.1

COUNT (FREQUENCY) DISTRIBUTION FROM DISPLAY AREA: 5

INDICES

COUNTS MODE = .36 MEDIAN = .61 MICRONS AND LARGER

GEOMETRIC COUNTS MEAN = .69 +/- .52 (74.56%) SKEWNESS = .64

ARITHMETIC COUNTS MEAN = .84 +/- .78 (91.95%) SKEWNESS = .62

FOR PLOTTING PROBABILITY ON LOG PAPER:

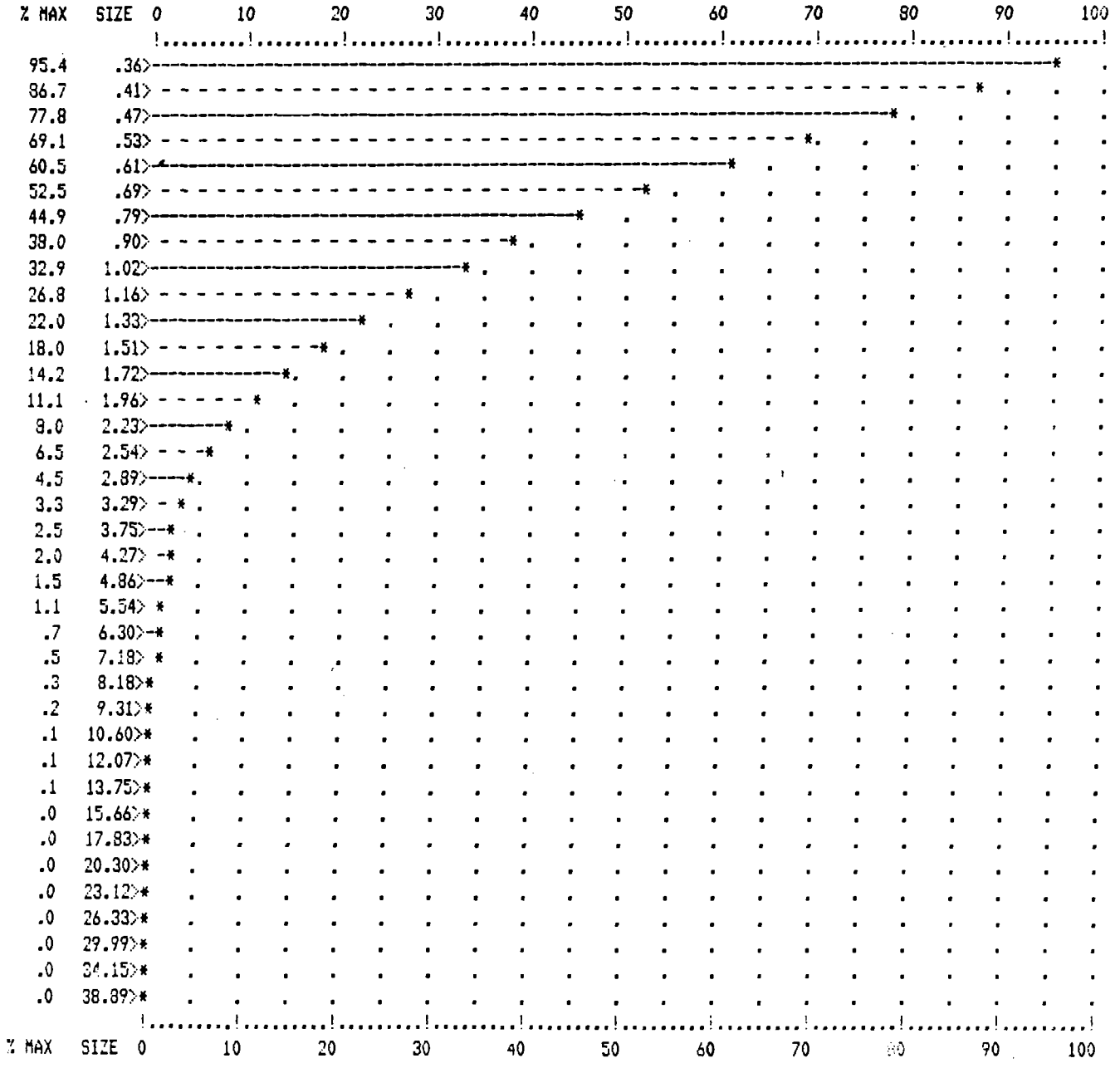
PERCENTILE:	00.1%	OF COUNTS IS AT	8.54 MICRONS AND LARGER
PERCENTILE:	01.0%	OF COUNTS IS AT	4.09 MICRONS AND LARGER
PERCENTILE:	06.0%	OF COUNTS IS AT	1.87 MICRONS AND LARGER
PERCENTILE:	22.0%	OF COUNTS IS AT	1.02 MICRONS AND LARGER
PERCENTILE:	50.0%	OF COUNTS IS AT	.61 MICRONS AND LARGER
PERCENTILE:	78.0%	OF COUNTS IS AT	.43 MICRONS AND LARGER
PERCENTILE:	94.0%	OF COUNTS IS AT	.38 MICRONS AND LARGER
PERCENTILE:	99.0%	OF COUNTS IS AT	.36 MICRONS AND LARGER
PERCENTILE:	99.9%	OF COUNTS IS AT	.36 MICRONS AND LARGER

PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC, 27 SEP 86 :DATE
SAMPLE: BELT CONVEYOR ANDTRIPPER 10850 : JOB NUMBER

PARTICLE SIZE VS. COUNTS
ENCLOSING
LOW AT 1 .36 2000000 HIGH AT 109 38.89 1

GRAPH OF DIAMETER SIZES VS. DIFFERENTIAL COUNTS FROM CHANNEL 1 TO 109, AND SKIP: 2



PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC, 27 SEP 86 :DATE
SAMPLE: BELT CONVEYOR ANDTRIPPER 10850 : JOB NUMBER

"TOTAL IN TABULATION= TOTAL COUNT OR VOLUME IN ANALYSIS
TABULATION

DATA ID 10850 DATE 27 SEP
SIZE-NORMALIZED COUNTS DISTRIBUTION
TOTAL =40685759

CHNL	SIZE	COUNTS	% >	CHNL	SIZE	COUNTS	% >	CHNL	SIZE	COUNTS	% >
1	.36	2000000	100.00	38	1.79	271406	7.18	75	8.92	5605	.09
2	.38	1939883	95.08	39	1.87	241958	6.51	76	9.31	4993	.08
3	.39	1879073	90.32	40	1.96	232054	5.92	77	9.72	4260	.07
4	.41	1817761	85.70	41	2.04	199965	5.35	78	10.15	3666	.05
5	.43	1756080	81.23	42	2.13	181569	4.85	79	10.60	3114	.05
6	.45	1694238	76.91	43	2.23	167947	4.41	80	11.07	2599	.04
7	.47	1632389	72.75	44	2.33	151278	4.00	81	11.56	2252	.03
8	.49	1570697	68.74	45	2.43	146131	3.62	82	12.07	1857	.03
9	.51	1508741	64.88	46	2.54	136037	3.26	83	12.61	1556	.02
10	.53	1448101	61.17	47	2.65	119890	2.93	84	13.17	1343	.02
11	.56	1387949	57.61	48	2.77	103360	2.64	85	13.75	1072	.01
12	.58	1328462	54.20	49	2.89	94326	2.38	86	14.36	868	.01
13	.61	1269805	50.93	50	3.02	81149	2.15	87	14.99	733	.01
14	.63	1212092	47.81	51	3.15	77549	1.95	88	15.66	609	.01
15	.66	1155451	44.83	52	3.29	70010	1.76	89	16.35	497	.01
16	.69	1099981	41.99	53	3.44	64112	1.59	90	17.07	398	.01
17	.72	1045775	39.29	54	3.59	57899	1.43	91	17.83	342	.00
18	.75	992913	36.72	55	3.75	51867	1.29	92	18.62	294	.00
19	.79	941463	34.28	56	3.91	47592	1.16	93	19.44	242	.00
20	.82	891489	31.96	57	4.09	44533	1.04	94	20.30	186	.00
21	.86	843043	29.77	58	4.27	41559	.93	95	21.20	150	.00
22	.90	796164	27.70	59	4.46	38551	.83	96	22.14	119	.00
23	.94	750891	25.74	60	4.65	35320	.74	97	23.12	99	.00
24	.98	707246	23.90	61	4.86	31555	.65	98	24.15	70	.00
25	1.02	690619	22.16	62	5.08	28419	.57	99	25.22	61	.00
26	1.07	608567	20.46	63	5.30	25207	.50	100	26.33	45	.00
27	1.11	614452	18.97	64	5.54	22326	.44	101	27.50	32	.00
28	1.16	561160	17.46	65	5.78	20299	.39	102	28.72	28	.00
29	1.22	507617	16.08	66	6.04	17429	.34	103	29.99	31	.00
30	1.27	494481	14.83	67	6.30	15683	.29	104	31.31	23	.00
31	1.33	461618	13.61	68	6.58	13539	.25	105	32.70	20	.00
32	1.38	428242	12.48	69	6.87	11734	.22	106	34.15	19	.00
33	1.45	396954	11.43	70	7.18	10522	.19	107	35.66	9	.00
34	1.51	377890	10.45	71	7.50	9184	.17	108	37.24	7	.00
35	1.58	341840	9.52	72	7.83	8052	.14	109	38.89	1	.00
36	1.65	313783	8.68	73	8.18	7137	.12				
37	1.72	298270	7.91	74	8.54	6231	.11				

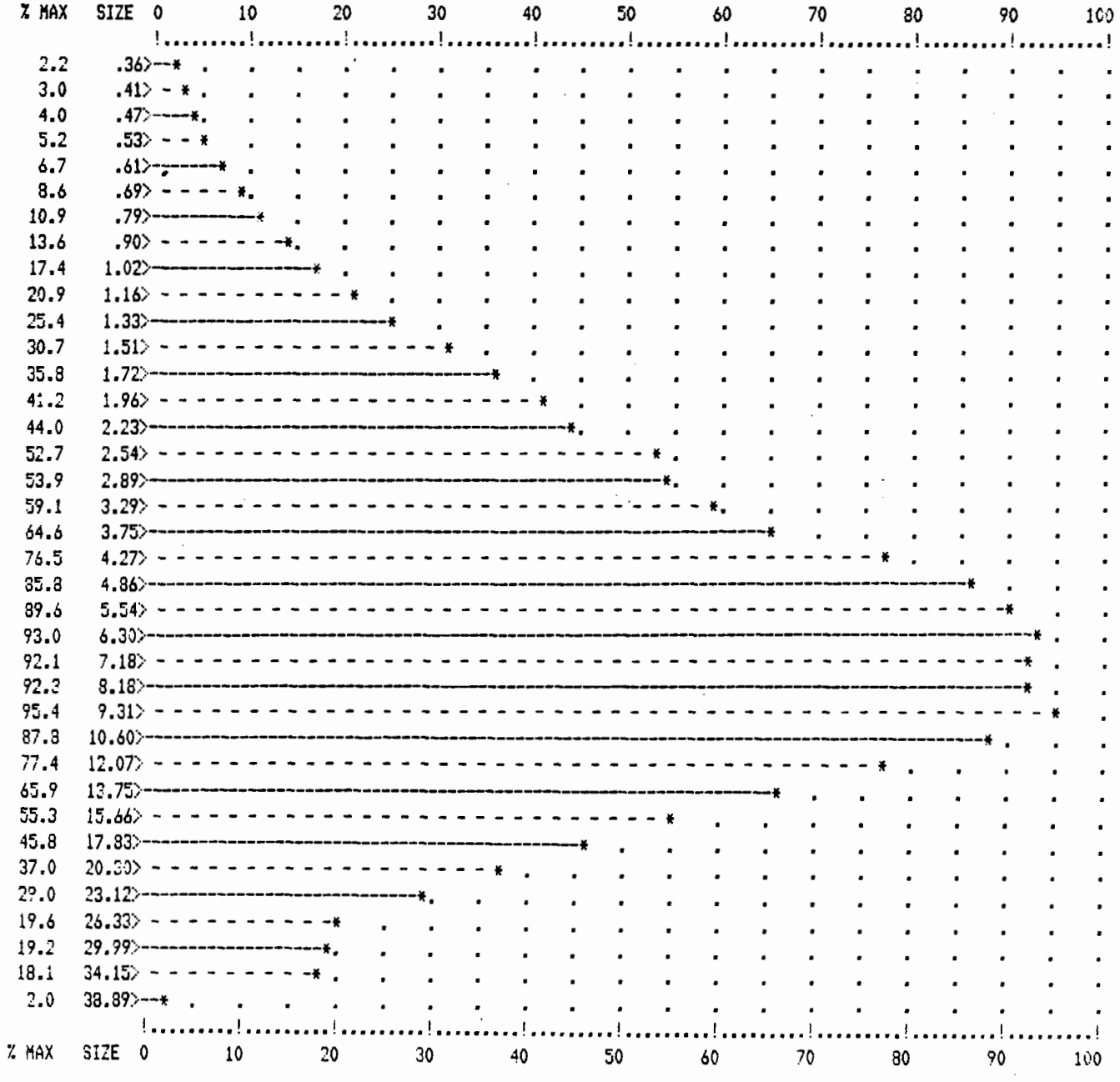
DISPLAY AREA: 4

PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 27 SEP 86 :DATE
SAMPLE: BELT CONVEYOR ANDTRIPPER 10850 : JOB NUMBER

PARTICLE SIZE VS. VOLUME
ENCLOSING
LOW AT 1 .36 93647 HIGH AT 109 38.89 84835

GRAPH OF DIAMETER SIZES VS. DIFFERENTIAL VOLUME FROM CHANNEL 1 TO 109, AND SKIP: 2



PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC, 27 SEP 86 :DATE
SAMPLE: BELT CONVEYOR ANDTRIPPER 10850 : JOB NUMBER

"TOTAL IN TABULATION= TOTAL COUNT OR VOLUME IN ANALYSIS
TABULATION

DATA ID 10850 DATE 27 SEP
SIZE-NORMALIZED VOLUME DISTRIBUTION
TOTAL = 1.97582E 8

CHNL	SIZE	VOLUME	% >	CHNL	SIZE	VOLUME	% >	CHNL	SIZE	VOLUME	% >
1	.36	93647	100.00	38	1.79	1557500	89.17	75	8.92	3942740	34.86
2	.38	103439	99.95	39	1.87	1581060	88.38	76	9.31	4000000	32.86
3	.39	114102	99.90	40	1.96	1726500	87.58	77	9.72	3886437	30.84
4	.41	125699	99.84	41	2.04	1694901	86.70	78	10.15	3809079	28.87
5	.43	138287	99.78	42	2.13	1752573	85.85	79	10.60	3684145	26.94
6	.45	151934	99.71	43	2.23	1846075	84.96	80	11.07	3500644	25.08
7	.47	166705	99.63	44	2.33	1893637	84.02	81	11.56	3456145	23.31
8	.49	182667	99.55	45	2.43	2083065	83.07	82	12.07	3244767	21.56
9	.51	199892	99.46	46	2.54	2208314	82.01	83	12.61	3094369	19.91
10	.53	218448	99.35	47	2.65	2216324	80.89	84	13.17	3041807	18.35
11	.56	238409	99.24	48	2.77	2175914	79.77	85	13.75	2766089	16.81
12	.58	259846	99.12	49	2.89	2261346	78.67	86	14.36	2549770	15.41
13	.61	282835	98.99	50	3.02	2215436	77.53	87	14.99	2449564	14.12
14	.63	307445	98.85	51	3.15	2410982	76.40	88	15.66	2318688	12.88
15	.66	333751	98.69	52	3.29	2478647	75.18	89	16.35	2153175	11.71
16	.69	361824	98.52	53	3.44	2584770	73.93	90	17.07	1962675	10.62
17	.72	391736	98.34	54	3.59	2658051	72.62	91	17.83	1922379	9.62
18	.75	423554	98.14	55	3.75	2711394	71.28	92	18.62	1885253	8.65
19	.79	457346	97.93	56	3.91	2832669	69.90	93	19.44	1769716	7.70
20	.82	493174	97.70	57	4.09	3019711	68.47	94	20.30	1550673	6.80
21	.86	531102	97.45	58	4.27	3209103	66.94	95	21.20	1423644	6.01
22	.90	571181	97.18	59	4.46	3390089	65.32	96	22.14	1291214	5.29
23	.94	613466	96.89	60	4.65	3537038	63.60	97	23.12	1217355	4.64
24	.98	658004	96.58	61	4.86	3598496	61.81	98	24.15	968583	4.02
25	1.02	731710	96.25	62	5.08	3690674	59.99	99	25.22	877854	3.53
26	1.07	734264	95.88	63	5.30	3727851	58.12	100	26.33	823563	3.04
27	1.11	844257	95.50	64	5.54	3760141	56.24	101	27.50	670181	2.62
28	1.16	878047	95.08	65	5.78	3893046	54.33	102	28.72	666745	2.28
29	1.22	904502	94.63	66	6.04	3806683	52.36	103	29.99	803740	1.95
30	1.27	1003383	94.17	67	6.30	3900571	50.44	104	31.31	688138	1.64
31	1.33	1066702	93.67	68	6.58	3834422	48.46	105	32.70	723948	1.19
32	1.38	1126919	93.13	69	6.87	3784725	46.52	106	34.15	759343	.82
33	1.45	1189556	92.56	70	7.18	3864361	44.61	107	35.66	384155	.44
34	1.51	1289592	91.95	71	7.50	3840697	42.65	108	37.24	400732	.25
35	1.58	1328464	91.30	72	7.83	3934395	40.71	109	38.89	84835	.04
36	1.65	1388651	90.63	73	8.18	3871980	38.77				
37	1.72	1503140	89.93	74	8.54	3848892	36.81				

PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 27 SEP 86 :DATE
SAMPLE: # 10 TANK 10850 : JOB NUMBER

VOLUME (MASS) DISTRIBUTION FROM DISPLAY AREA: 4

INDICES

VOLUME MODE = 6.04 MEDIAN = 6.30 MICRONS AND LARGER

GEOMETRIC VOLUME MEAN = 6.53 +/- 12.02 (183.97%) SKEWNESS = .04

ARITHMETIC VOLUME MEAN = 11.17 +/- 13.16 (117.87%) SKEWNESS = .39

FOR PLOTTING PROBABILITY ON LOG PAPER:

PERCENTILE:	00.1%	OF VOLUME IS AT	81.22 MICRONS AND LARGER	99.9
PERCENTILE:	01.0%	OF VOLUME IS AT	65.40 MICRONS AND LARGER	99.0
PERCENTILE:	06.0%	OF VOLUME IS AT	37.24 MICRONS AND LARGER	94.0
PERCENTILE:	22.0%	OF VOLUME IS AT	14.99 MICRONS AND LARGER	78.0
PERCENTILE:	50.0%	OF VOLUME IS AT	6.30 MICRONS AND LARGER	50.0
PERCENTILE:	78.0%	OF VOLUME IS AT	2.89 MICRONS AND LARGER	22.0
PERCENTILE:	94.0%	OF VOLUME IS AT	1.27 MICRONS AND LARGER	06.0
PERCENTILE:	99.0%	OF VOLUME IS AT	.69 MICRONS AND LARGER	1.0
PERCENTILE:	99.9%	OF VOLUME IS AT	.51 MICRONS AND LARGER	0.1

COUNT (FREQUENCY) DISTRIBUTION FROM DISPLAY AREA: 5

INDICES

COUNTS MODE = .49 MEDIAN = .79 MICRONS AND LARGER

GEOMETRIC COUNTS MEAN = .90 +/- .59 (66.36%) SKEWNESS = .68

ARITHMETIC COUNTS MEAN = 1.05 +/- .84 (79.93%) SKEWNESS = .67

FOR PLOTTING PROBABILITY ON LOG PAPER:

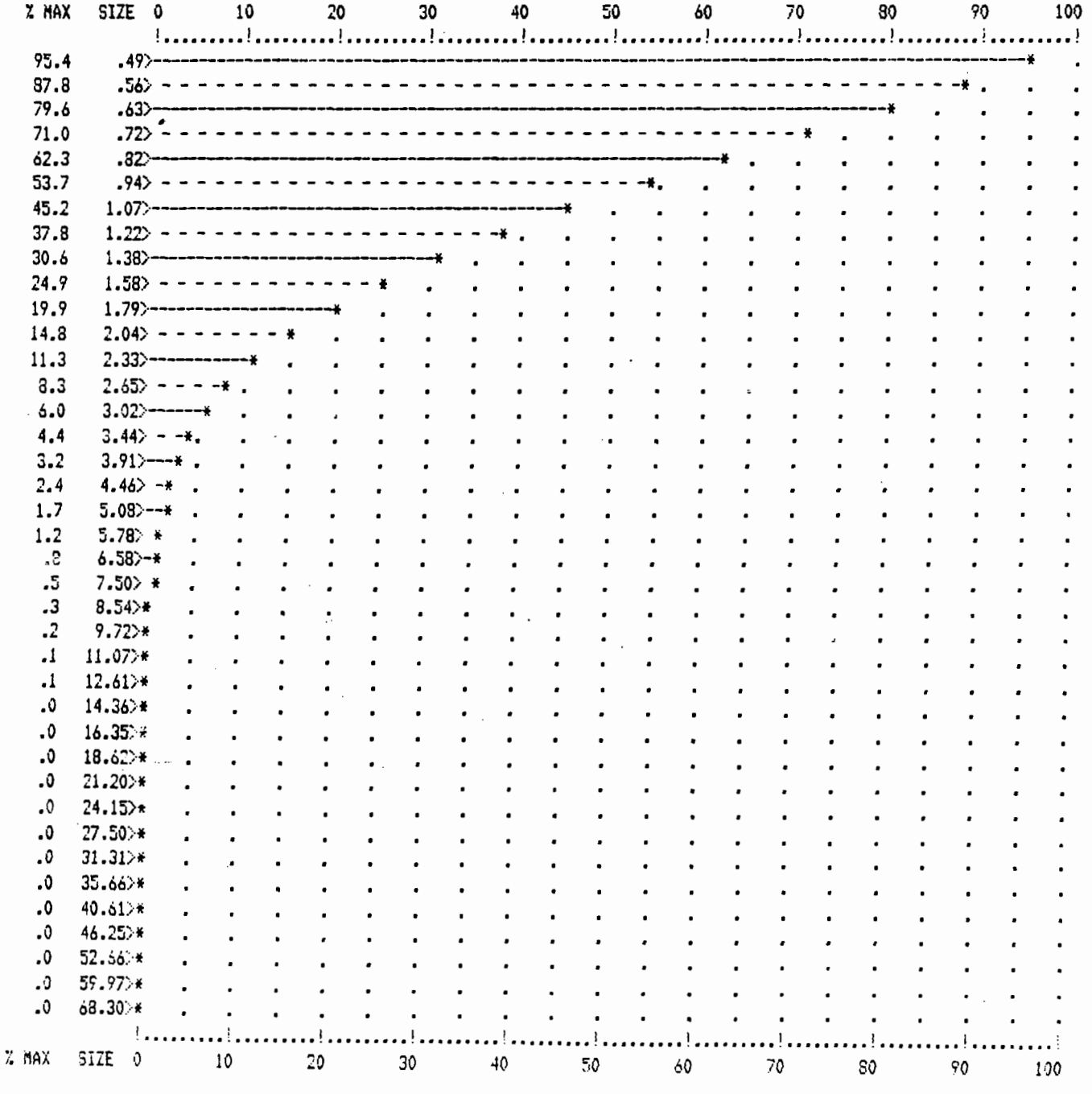
PERCENTILE:	00.1%	OF COUNTS IS AT	8.92 MICRONS AND LARGER
PERCENTILE:	01.0%	OF COUNTS IS AT	4.46 MICRONS AND LARGER
PERCENTILE:	06.0%	OF COUNTS IS AT	2.23 MICRONS AND LARGER
PERCENTILE:	22.0%	OF COUNTS IS AT	1.27 MICRONS AND LARGER
PERCENTILE:	50.0%	OF COUNTS IS AT	.79 MICRONS AND LARGER
PERCENTILE:	78.0%	OF COUNTS IS AT	.58 MICRONS AND LARGER
PERCENTILE:	94.0%	OF COUNTS IS AT	.51 MICRONS AND LARGER
PERCENTILE:	99.0%	OF COUNTS IS AT	.49 MICRONS AND LARGER
PERCENTILE:	99.9%	OF COUNTS IS AT	.49 MICRONS AND LARGER

PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 27 SEP 86 :DATE
SAMPLE: # 10 TANK 10850 : JOB NUMBER

PARTICLE SIZE VS. COUNTS
ENCLOSING
LOW AT 1 .49 2000000 HIGH AT 117 74.48 1

GRAPH OF DIAMETER SIZES VS. DIFFERENTIAL COUNTS FROM CHANNEL 1 TO 117, AND SKIP: 2



PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 27 SEP 86 :DATE
SAMPLE: # 10 TANK 10850 : JOB NUMBER

"TOTAL IN TABULATION= TOTAL COUNT OR VOLUME IN ANALYSIS TABULATION

DATA ID 10850 DATE 27 SEP
SIZE-NORMALIZED COUNTS DISTRIBUTION
TOTAL =39736489

CHNL	SIZE	COUNTS	% >	CHNL	SIZE	COUNTS	% >	CHNL	SIZE	COUNTS	% >
1	.49	2000000	100.00	40	2.65	174097	4.20	79	14.36	1037	.02
2	.51	1948843	94.97	41	2.77	156828	3.76	80	14.99	865	.01
3	.53	1896816	90.06	42	2.89	140171	3.36	81	15.66	737	.01
4	.56	1842304	85.29	43	3.02	126438	3.01	82	16.35	616	.01
5	.58	1786232	80.65	44	3.15	112556	2.69	83	17.07	507	.01
6	.61	1728670	76.16	45	3.29	100155	2.41	84	17.83	448	.01
7	.63	1669908	71.81	46	3.44	92613	2.16	85	18.62	389	.01
8	.66	1610200	67.61	47	3.59	82015	1.92	86	19.44	312	.01
9	.69	1549805	63.55	48	3.75	72825	1.72	87	20.30	271	.00
10	.72	1488959	59.65	49	3.91	67521	1.53	88	21.20	239	.00
11	.75	1427907	55.91	50	4.09	62799	1.36	89	22.14	208	.00
12	.79	1366872	52.31	51	4.27	56441	1.21	90	23.12	180	.00
13	.82	1306073	48.87	52	4.46	50767	1.06	91	24.15	149	.00
14	.86	1245714	45.59	53	4.65	45777	.94	92	25.22	127	.00
15	.90	1185987	42.45	54	4.86	39615	.82	93	26.33	108	.00
16	.94	1127073	39.47	55	5.08	35703	.72	94	27.50	93	.00
17	.98	1070103	36.63	56	5.30	32063	.63	95	28.72	77	.00
18	1.02	993963	33.94	57	5.54	28595	.55	96	29.99	63	.00
19	1.07	947773	31.44	58	5.78	25649	.48	97	31.31	55	.00
20	1.11	910670	29.05	59	6.04	22605	.41	98	32.70	46	.00
21	1.16	855414	26.76	60	6.30	19494	.36	99	34.15	41	.00
22	1.22	792478	24.61	61	6.58	17212	.31	100	35.66	32	.00
23	1.27	737758	22.61	62	6.87	14928	.26	101	37.24	28	.00
24	1.33	700055	20.75	63	7.18	12795	.23	102	38.89	25	.00
25	1.38	641828	18.99	64	7.50	11432	.19	103	40.61	20	.00
26	1.45	601231	17.38	65	7.83	9908	.17	104	42.41	17	.00
27	1.51	558878	15.86	66	8.18	8286	.14	105	44.29	14	.00
28	1.58	521458	14.46	67	8.54	7108	.12	106	46.25	13	.00
29	1.65	494613	13.15	68	8.92	6190	.10	107	48.29	11	.00
30	1.72	451309	11.90	69	9.31	5225	.09	108	50.43	8	.00
31	1.79	416951	10.77	70	9.72	4359	.07	109	52.66	7	.00
32	1.87	377737	9.72	71	10.15	3661	.06	110	55.00	6	.00
33	1.96	338373	8.77	72	10.60	3112	.05	111	57.43	4	.00
34	2.04	309340	7.91	73	11.07	2688	.05	112	59.97	4	.00
35	2.13	276566	7.14	74	11.56	2346	.04	113	62.63	3	.00
36	2.23	249296	6.44	75	12.07	2024	.03	114	65.40	3	.00
37	2.33	237197	5.81	76	12.61	1660	.03	115	68.30	1	.00
38	2.43	214407	5.22	77	13.17	1400	.02	116	71.32	1	.00
39	2.54	190905	4.68	78	13.75	1196	.02	117	74.48	1	.00

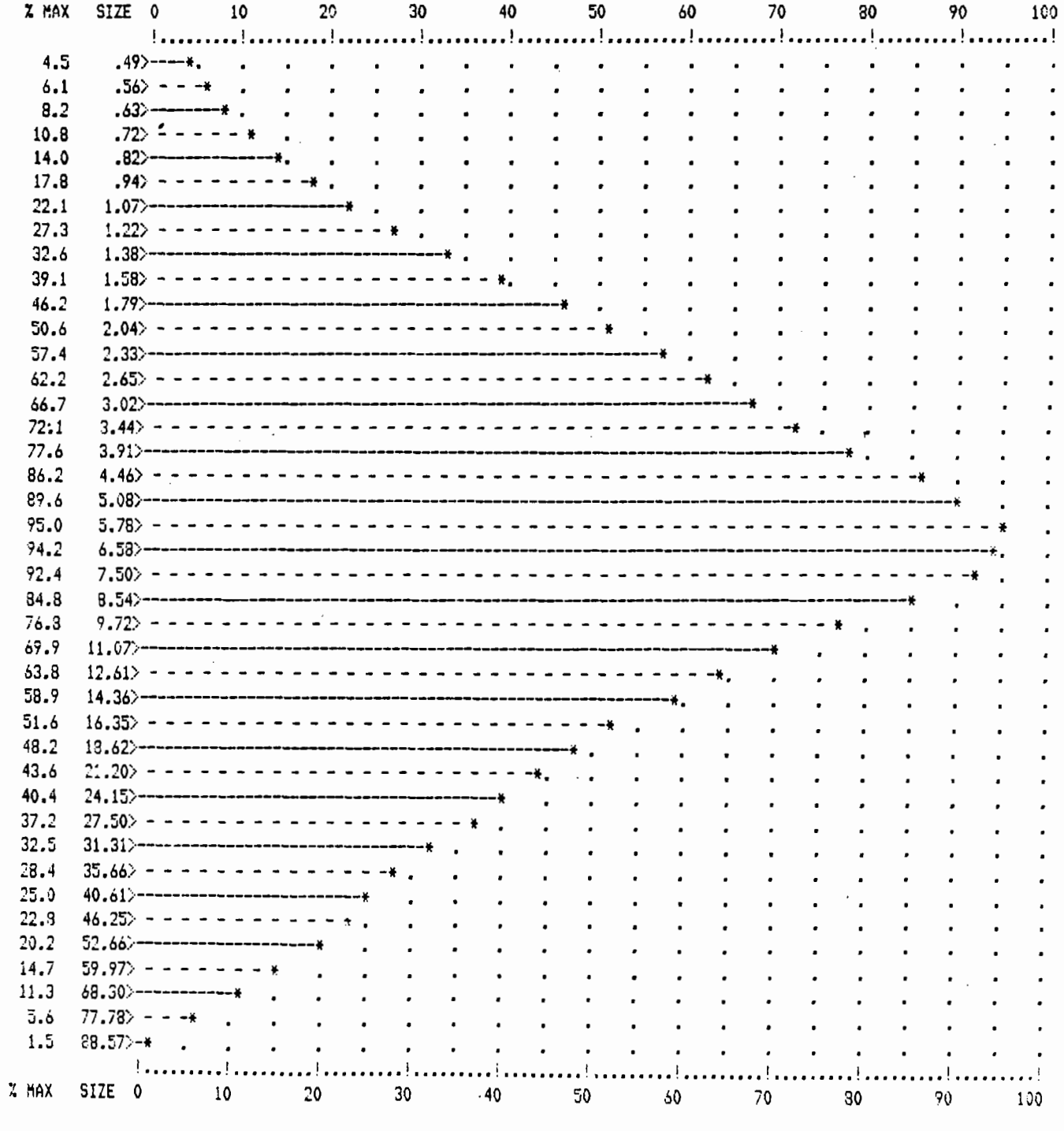
DISPLAY AREA: 4

PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 27 SEP 86 :DATE
SAMPLE: # 10 TANK 10850 : JOB NUMBER

PARTICLE SIZE VS. VOLUME
ENCLOSING
LOW AT 1 .49 188443 HIGH AT 122 92.49 38596

GRAPH OF DIAMETER SIZES VS. DIFFERENTIAL VOLUME FROM CHANNEL 1 TO 122, AND SKIP: 2



PARTICLE SIZE ANALYSIS BY ELZONE METHOD—PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 27 SEP 86 :DATE
SAMPLE: # 10 TANK 10850 : JOB NUMBER

"TOTAL IN TABULATION= TOTAL COUNT OR VOLUME IN ANALYSIS
TABULATION

DATA ID 10850 DATE 27 SEP
SIZE-NORMALIZED VOLUME DISTRIBUTION
TOTAL = 2.27221E 8

CHNL	SIZE	VOLUME	% >	CHNL	SIZE	VOLUME	% >	CHNL	SIZE	VOLUME	% >
1	.49	188443	100.00	42	2.89	2722539	78.04	83	17.07	2034096	19.29
2	.51	209189	99.92	43	3.02	2796639	76.84	84	17.83	2043040	18.39
3	.53	231798	99.83	44	3.15	2835100	75.61	85	18.62	2020831	17.49
4	.56	256385	99.72	45	3.29	2872816	74.36	86	19.44	1843920	16.60
5	.58	283065	99.61	46	3.44	3025103	73.10	87	20.30	1822384	15.79
6	.61	311954	99.49	47	3.59	3050529	71.77	88	21.20	1827467	14.99
7	.63	343167	99.35	48	3.75	3084335	70.43	89	22.14	1818134	14.19
8	.66	376819	99.20	49	3.91	3256050	69.07	90	23.12	1783816	13.39
9	.69	413020	99.03	50	4.09	3449956	67.64	91	24.15	1694705	12.60
10	.72	451876	98.85	51	4.27	3531056	66.12	92	25.22	1639114	11.85
11	.75	493492	98.65	52	4.46	3616884	64.56	93	26.33	1598739	11.13
12	.79	537961	98.43	53	4.65	3713917	62.97	94	27.50	1559293	10.43
13	.82	585374	98.20	54	4.86	3660121	61.34	95	28.72	1469072	9.74
14	.86	635811	97.94	55	5.08	3756405	59.73	96	29.99	1365756	9.10
15	.90	689339	97.66	56	5.30	3841665	58.07	97	31.31	1361939	8.50
16	.94	746016	97.36	57	5.54	3901632	56.38	98	32.70	1308006	7.90
17	.98	806612	97.03	58	5.78	3985411	54.66	99	34.15	1317024	7.32
18	1.02	853203	96.67	59	6.04	4000000	52.91	100	35.66	1190224	6.74
19	1.07	926467	96.30	60	6.30	3928160	51.15	101	37.24	1151463	6.22
20	1.11	1013748	95.89	61	6.58	3949836	49.42	102	38.89	1169221	5.71
21	1.16	1084398	95.44	62	6.87	3900933	47.68	103	40.61	1047381	5.20
22	1.22	1144044	94.97	63	7.18	3807294	45.97	104	42.41	1004052	4.73
23	1.27	1212864	94.46	64	7.50	3873540	44.29	105	44.29	1008550	4.29
24	1.33	1310610	93.93	65	7.83	3822423	42.59	106	46.25	956009	3.85
25	1.38	1368371	93.35	66	8.18	3641383	40.90	107	48.29	972807	3.43
26	1.45	1459717	92.75	67	8.54	3557485	39.30	108	50.43	699507	3.00
27	1.51	1545206	92.11	68	8.92	3527737	37.74	109	52.66	847761	2.60
28	1.58	1641826	91.43	69	9.31	3391418	36.18	110	55.00	760424	2.23
29	1.65	1773411	90.70	70	9.72	3222136	34.69	111	57.43	663495	1.90
30	1.72	1842669	89.92	71	10.15	3080823	33.27	112	59.97	616225	1.60
31	1.79	1938545	89.11	72	10.60	2983177	31.92	113	62.63	612113	1.33
32	1.87	1999767	88.26	73	11.07	2933467	30.60	114	65.40	558571	1.06
33	1.96	2039655	87.38	74	11.56	2917359	29.31	115	68.30	475994	.82
34	2.04	2124260	86.48	75	12.07	2865477	28.03	116	71.32	432079	.61
35	2.13	2162791	85.55	76	12.61	2675668	26.77	117	74.48	306369	.42
36	2.23	2220106	84.60	77	13.17	2569834	25.59	118	77.78	233729	.28
37	2.33	2405530	83.62	78	13.75	2501199	24.46	119	81.22	191849	.18
38	2.43	2476184	82.56	79	14.36	2470313	23.36	120	84.82	118355	.10
39	2.54	2510758	81.47	80	14.99	2341783	22.27	121	88.57	61938	.04
40	2.65	2607487	80.37	81	15.66	2274723	21.24	122	92.49	38596	.02
41	2.77	2674847	79.22	82	16.35	2163595	20.24				

#

PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 29 SEP 86 :DATE
SAMPLE: CYCLONE 10850 : JOB NUMBER

VOLUME (MASS) DISTRIBUTION FROM DISPLAY AREA: 4

INDICES

VOLUME MODE = 10.60 MEDIAN = 9.31 MICRONS AND LARGER

GEOMETRIC VOLUME MEAN = 8.40 +/- 9.94 (118.31%) SKEWNESS = -.22

ARITHMETIC VOLUME MEAN = 10.93 +/- 7.77 (71.12%) SKEWNESS = .04

FOR PLOTTING PROBABILITY ON LOG PAPER:

PERCENTILE: 00.1% OF VOLUME IS AT 48.29 MICRONS AND LARGER 99.9
PERCENTILE: 01.0% OF VOLUME IS AT 38.89 MICRONS AND LARGER 99
PERCENTILE: 06.0% OF VOLUME IS AT 25.22 MICRONS AND LARGER 94
PERCENTILE: 22.0% OF VOLUME IS AT 14.99 MICRONS AND LARGER 78
PERCENTILE: 50.0% OF VOLUME IS AT 9.31 MICRONS AND LARGER 50
PERCENTILE: 78.0% OF VOLUME IS AT 4.86 MICRONS AND LARGER 22
PERCENTILE: 94.0% OF VOLUME IS AT 2.13 MICRONS AND LARGER 6
PERCENTILE: 99.0% OF VOLUME IS AT .98 MICRONS AND LARGER 1
PERCENTILE: 99.9% OF VOLUME IS AT .53 MICRONS AND LARGER 0.1

COUNT (FREQUENCY) DISTRIBUTION FROM DISPLAY AREA: 5

INDICES

COUNTS MODE = .45 MEDIAN = .86 MICRONS AND LARGER

GEOMETRIC COUNTS MEAN = .97 +/- .84 (86.32%) SKEWNESS = .62

ARITHMETIC COUNTS MEAN = 1.24 +/- 1.27 (102.34%) SKEWNESS = .62

FOR PLOTTING PROBABILITY ON LOG PAPER:

PERCENTILE: 00.1% OF COUNTS IS AT 13.17 MICRONS AND LARGER
PERCENTILE: 01.0% OF COUNTS IS AT 6.87 MICRONS AND LARGER
PERCENTILE: 06.0% OF COUNTS IS AT 2.89 MICRONS AND LARGER
PERCENTILE: 22.0% OF COUNTS IS AT 1.51 MICRONS AND LARGER
PERCENTILE: 50.0% OF COUNTS IS AT .86 MICRONS AND LARGER
PERCENTILE: 78.0% OF COUNTS IS AT .58 MICRONS AND LARGER
PERCENTILE: 94.0% OF COUNTS IS AT .47 MICRONS AND LARGER
PERCENTILE: 99.0% OF COUNTS IS AT .45 MICRONS AND LARGER
PERCENTILE: 99.9% OF COUNTS IS AT .45 MICRONS AND LARGER

PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 29 SEP 86 :DATE
SAMPLE: CYCLONE 10850 : JOB NUMBER

PARTICLE SIZE VS. COUNTS
ENCLOSING
LOW AT 1 .45 500000 HIGH AT 110 50.43 2

GRAPH OF DIAMETER SIZES VS. DIFFERENTIAL COUNTS FROM CHANNEL 1 TO 110, AND SKIP: 2

% MAX	SIZE	0 10 20 30 40 50 60 70 80 90 100
95.4	.45	
91.4	.51	
86.7	.58	
81.1	.66	
74.9	.75	
68.4	.86	
61.6	.98	
54.8	1.11	
48.2	1.27	
40.3	1.45	
34.5	1.65	
29.7	1.87	
24.9	2.13	
19.1	2.43	
14.9	2.77	
11.2	3.15	
8.5	3.59	
7.0	4.09	
5.7	4.65	
4.5	5.30	
3.5	6.04	
2.7	6.87	
2.1	7.83	
1.6	8.92	
1.2	10.15	
.8	11.56	
.5	13.17	
.3	14.99	
.2	17.07	
.1	19.44	
.0	22.14	
.0	25.22	
.0	28.72	
.0	32.70	
.0	37.24	
.0	42.41	
.0	48.29	

% MAX SIZE 0 10 20 30 40 50 60 70 80 90 100

PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 29 SEP 86 :DATE
SAMPLE: CYCLONE 10850 : JOB NUMBER

"TOTAL IN TABULATION= TOTAL COUNT OR VOLUME IN ANALYSIS
TABULATION

DATA ID 10850 DATE 29 SEP
SIZE-NORMALIZED COUNTS DISTRIBUTION
TOTAL = 1.32812E 7

CHNL	SIZE	COUNTS	% >	CHNL	SIZE	COUNTS	% >	CHNL	SIZE	COUNTS	% >
1	.45	500000	100.00	38	2.23	119811	10.91	75	11.07	4749	.23
2	.47	493802	96.24	39	2.33	109826	10.01	76	11.56	4105	.19
3	.49	487005	92.52	40	2.43	100242	9.18	77	12.07	3581	.16
4	.51	479441	88.85	41	2.54	90853	8.42	78	12.61	3073	.14
5	.53	471609	85.24	42	2.65	84531	7.74	79	13.17	2601	.11
6	.56	463227	81.69	43	2.77	78188	7.10	80	13.75	2179	.09
7	.58	454349	78.20	44	2.89	72241	6.51	81	14.36	1857	.08
8	.61	445005	74.78	45	3.02	65893	5.97	82	14.99	1581	.06
9	.63	435240	71.43	46	3.15	58774	5.47	83	15.66	1272	.05
10	.66	425096	68.15	47	3.29	54789	5.03	84	16.35	1075	.04
11	.69	414608	64.95	48	3.44	49543	4.62	85	17.07	870	.03
12	.72	403816	61.83	49	3.59	44570	4.25	86	17.83	714	.03
13	.75	392760	58.79	50	3.75	41725	3.91	87	18.62	565	.02
14	.79	381474	55.83	51	3.91	39377	3.60	88	19.44	456	.02
15	.82	369998	52.96	52	4.09	36940	3.30	89	20.30	356	.01
16	.86	358370	50.17	53	4.27	34624	3.02	90	21.20	282	.01
17	.90	346622	47.48	54	4.46	32174	2.76	91	22.14	229	.01
18	.94	334795	44.87	55	4.65	29847	2.52	92	23.12	187	.01
19	.98	322921	42.35	56	4.86	27630	2.29	93	24.15	156	.01
20	1.02	311037	39.91	57	5.08	25754	2.09	94	25.22	120	.00
21	1.07	299174	37.57	58	5.30	23378	1.89	95	26.33	97	.00
22	1.11	287363	35.32	59	5.54	21531	1.72	96	27.50	79	.00
23	1.16	275636	33.16	60	5.78	19882	1.55	97	28.72	59	.00
24	1.22	264018	31.08	61	6.04	18578	1.40	98	29.99	44	.00
25	1.27	252540	29.09	62	6.30	16915	1.26	99	31.31	38	.00
26	1.33	239280	27.19	63	6.56	15638	1.14	100	32.70	28	.00
27	1.38	226865	25.39	64	6.87	14186	1.02	101	34.15	21	.00
28	1.45	211425	23.68	65	7.18	13208	.91	102	35.66	18	.00
29	1.51	198859	22.09	66	7.50	12120	.81	103	37.24	13	.00
30	1.58	187678	20.59	67	7.83	11037	.72	104	38.89	10	.00
31	1.65	181064	19.18	68	8.18	10149	.64	105	40.61	8	.00
32	1.72	177136	17.82	69	8.54	9269	.56	106	42.41	5	.00
33	1.79	167325	16.48	70	8.92	8469	.49	107	44.29	5	.00
34	1.87	155799	15.22	71	9.31	7769	.43	108	46.25	2	.00
35	1.96	146773	14.05	72	9.72	6996	.37	109	48.29	2	.00
36	2.04	139970	12.94	73	10.15	6242	.32	110	50.43	2	.00
37	2.13	130527	11.89	74	10.60	5501	.27				

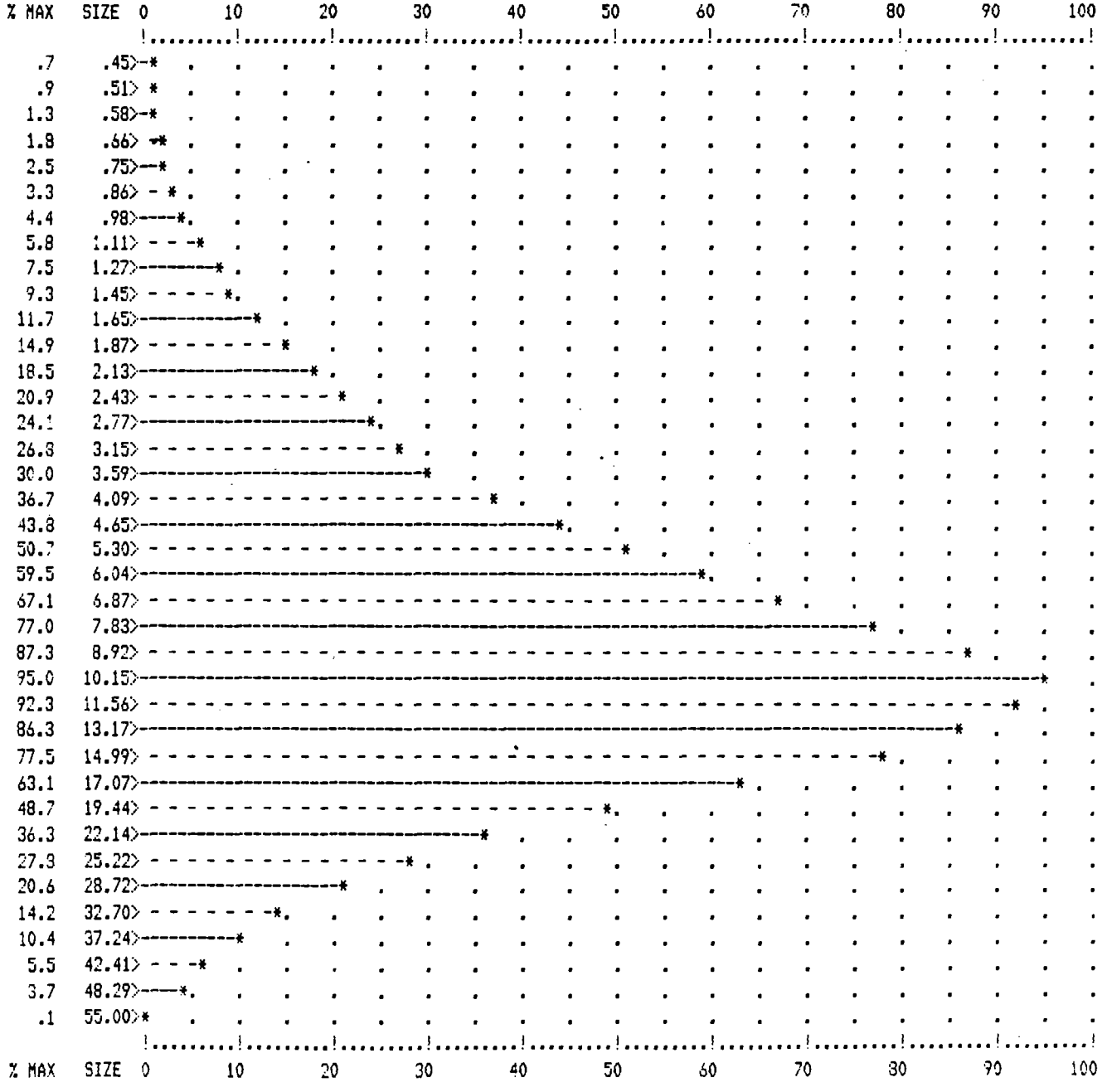
DISPLAY AREA: 4

PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 29 SEP 86 :DATE
SAMPLE: CYCLONE 10850 : JOB NUMBER

PARTICLE SIZE VS. VOLUME
ENCLOSING
LOW AT 1 .45 27560 HIGH AT 112 55.00 4980

GRAPH OF DIAMETER SIZES VS. DIFFERENTIAL VOLUME FROM CHANNEL 1 TO 112, AND SKIP: 2



PARTICLE SIZE ANALYSIS BY ELZONE METHOD--PARTICLE DATA LABORATORIES, LTD.
115 HAHN STREET - ELMHURST, IL. 60126 - TELEPHONE: (312)832-5658

CLIENT: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 29 SEP 86 :DATE
SAMPLE: CYCLONE 10850 : JOB NUMBER

"TOTAL IN TABULATION= TOTAL COUNT OR VOLUME IN ANALYSIS
TABULATION

DATA ID 10850 DATE 29 SEP
SIZE-NORMALIZED VOLUME DISTRIBUTION
TOTAL = 1.49656E 8

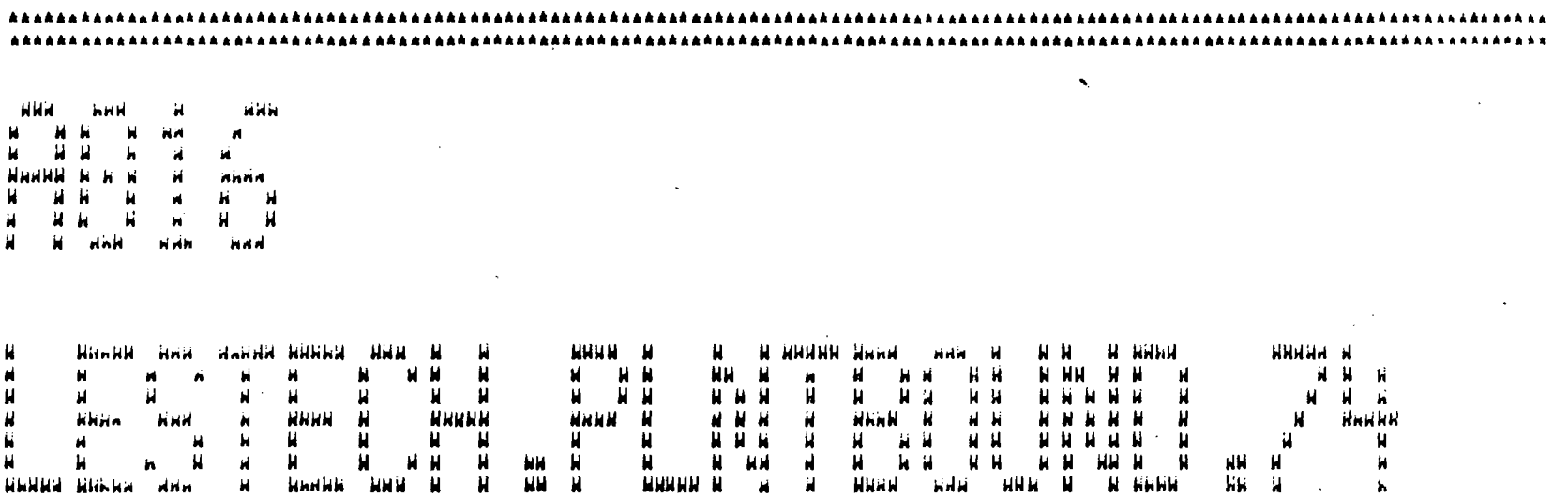
CHNL	SIZE	VOLUME	% >	CHNL	SIZE	VOLUME	% >	CHNL	SIZE	VOLUME	% >
1	.45	27560	100.00	39	2.33	844993	93.06	77	12.07	3845712	35.70
2	.47	30996	99.98	40	2.43	878293	92.49	78	12.61	3758025	33.13
3	.49	34812	99.96	41	2.54	906518	91.91	79	13.17	3621153	30.62
4	.51	39043	99.94	42	2.65	960504	91.30	80	13.75	3457134	28.20
5	.53	43728	99.91	43	2.77	1011726	90.66	81	14.36	3352909	25.89
6	.56	48907	99.88	44	2.89	1064498	89.98	82	14.99	3252105	23.64
7	.58	54624	99.85	45	3.02	1105701	89.27	83	15.66	2977255	21.47
8	.61	60924	99.81	46	3.15	1123133	88.53	84	16.35	2865585	19.48
9	.63	67856	99.77	47	3.29	1192260	87.78	85	17.07	2644914	17.57
10	.66	75472	99.73	48	3.44	1227719	86.99	86	17.83	2471782	15.80
11	.69	83826	99.68	49	3.59	1257676	86.17	87	18.62	2225875	14.15
12	.72	92975	99.62	50	3.75	1340653	85.33	88	19.44	2040800	12.66
13	.75	102980	99.56	51	3.91	1440595	84.43	89	20.30	1814534	11.30
14	.79	113903	99.49	52	4.09	1539564	83.47	90	21.20	1639680	10.09
15	.82	125809	99.41	53	4.27	1643379	82.44	91	22.14	1523161	8.99
16	.86	138767	99.33	54	4.46	1739028	81.34	92	23.12	1410393	7.97
17	.90	152846	99.24	55	4.65	1837147	80.18	93	24.15	1336096	7.03
18	.94	168121	99.13	56	4.86	1936696	78.95	94	25.22	1167326	6.14
19	.98	184664	99.02	57	5.08	2055725	77.66	95	26.33	1075534	5.36
20	1.02	202554	98.90	58	5.30	2125072	76.28	96	27.50	989040	4.64
21	1.07	221869	98.76	59	5.54	2228834	74.86	97	28.72	863409	3.98
22	1.11	242667	98.62	60	5.78	2343881	73.37	98	29.99	736184	3.40
23	1.16	265090	98.45	61	6.04	2494051	71.81	99	31.31	700459	2.91
24	1.22	289158	98.28	62	6.30	2585873	70.14	100	32.70	597266	2.44
25	1.27	314974	98.08	63	6.58	2722527	68.41	101	34.15	519459	2.04
26	1.33	339856	97.87	64	6.87	2812362	66.59	102	35.66	495121	1.69
27	1.38	366942	97.65	65	7.18	2981661	64.72	103	37.24	436477	1.36
28	1.45	389430	97.40	66	7.50	3115552	62.72	104	38.89	373252	1.07
29	1.51	417121	97.14	67	7.83	3230046	60.64	105	40.61	329150	.82
30	1.58	448298	96.86	68	8.18	3383818	58.48	106	42.41	231190	.60
31	1.65	492520	96.56	69	8.54	3519085	56.22	107	44.29	232301	.45
32	1.72	548690	96.23	70	8.92	3661849	53.87	108	46.25	144809	.29
33	1.79	590198	95.87	71	9.31	3825509	51.42	109	48.29	155407	.20
34	1.87	625748	95.47	72	9.72	3922639	48.87	110	50.43	92329	.09
35	1.96	671201	95.05	73	10.15	3985650	46.25	111	52.66	40082	.03
36	2.04	729210	94.60	74	10.60	4000000	43.58	112	55.00	4980	.00
37	2.13	774387	94.12	75	11.07	3932677	40.91				
38	2.23	809475	93.60	76	11.56	3870533	38.28				

‡

APPENDIX B

USER: AG16 -AI

<ESEACT>AG16>LESTECH.PLNTBOUND.74



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SPOOLED: 86-11-11.12:08:06.TUE [SPOOLER REV 19.4.5]
STARTED: 86-11-11.12:12:08.TUE ON: PR1 BY: PR1

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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) = 2
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)	ISW(4) = 0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)	ISW(5) = 0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)	ISW(6) = 1
COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION) WITH THE FOLLOWING TIME PERIODS:	
HOURLY (YES=1,NO=0)	ISW(7) = 0
2-HOUR (YES=1,NO=0)	ISW(8) = 0
3-HOUR (YES=1,NO=0)	ISW(9) = 0
4-HOUR (YES=1,NO=0)	ISW(10) = 0
6-HOUR (YES=1,NO=0)	ISW(11) = 0
8-HOUR (YES=1,NO=0)	ISW(12) = 0
12-HOUR (YES=1,NO=0)	ISW(13) = 0
24-HOUR (YES=1,NO=0)	ISW(14) = 1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) = 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) = 1
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	NXNYPT = 36
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 = 7.10 METERS	
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET = 9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION DECAY =0.000000E+00	
SURFACE STATION NO.	ISS = 12815
YEAR OF SURFACE DATA	ISY = 74
UPPER AIR STATION NO.	IUS = 12842
YEAR OF UPPER AIR DATA	IUY = 74
ALLOCATED DATA STORAGE	LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT = 991 WORDS

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

*** 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

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

*** RANGE,THETA COORDINATES OF DISCRETE RECEPTORS ***
(METERS,DEGREES)

(1820.,	10.),	(1910.,	20.),	(2090.,	30.),	(2550.,	40.),	(3050.,	50.),
(3450.,	60.),	(3140.,	70.),	(2980.,	80.),	(2920.,	90.),	(3450.,	100.),
(3230.,	110.),	(2950.,	120.),	(3320.,	130.),	(3420.,	140.),	(4060.,	150.),
(3350.,	160.),	(3200.,	170.),	(2650.,	180.),	(2680.,	190.),	(2520.,	200.),
(2340.,	210.),	(2520.,	220.),	(2120.,	230.),	(1910.,	240.),	(1350.,	250.),
(800.,	260.),	(770.,	270.),	(800.,	280.),	(830.,	290.),	(1290.,	300.),
(1460.,	310.),	(1720.,	320.),	(1600.,	330.),	(1450.,	340.),	(1380.,	350.),
(1350.,	360.),	(							

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

SOURCE # 1---BELT-TO-HOPPER, VOLUME SOURCE, 5X5X19.4
SOURCE # 2---HOPPER-TO-RAILCAR, VOLUME SOURCE,3X12X5.

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (G/S) TYPE=2 (G/S) APER 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	1	0	10	0.010	0.	0.	0.0	9.68	9.0	1.20	0.00	0.0	0.0	0.0
2	1	0	10	0.100	0.	0.	0.0	2.74	2.6	1.40	0.00	0.0	0.0	0.0

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

*** SOURCE PARTICULATE DATA ***

*** SOURCE NUMBER = 1 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.80000,

*** SOURCE NUMBER = 2 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.80000,

'N'-DAY
365 DAYS
SGROUP# 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- RNG -	- DIR -	CON.	- RNG -	- DIR -	CON.	- RNG -	- DIR -	CON.
1820.0	10.0	0.6	1910.0	20.0	0.3	2090.0	30.0	0.3
2550.0	40.0	0.2	3050.0	50.0	0.1	3450.0	60.0	0.2
3140.0	70.0	0.2	2980.0	80.0	0.2	2920.0	90.0	0.2
3450.0	100.0	0.1	3230.0	110.0	0.2	2950.0	120.0	0.2
3320.0	130.0	0.1	3420.0	140.0	0.1	4060.0	150.0	0.1
3350.0	160.0	0.1	3200.0	170.0	0.2	2650.0	180.0	0.7
2680.0	190.0	0.3	2520.0	200.0	0.6	2340.0	210.0	0.7
2520.0	220.0	0.6	2120.0	230.0	0.7	1910.0	240.0	0.7
1350.0	250.0	1.7	800.0	260.0	2.8	770.0	270.0	3.9
800.0	280.0	2.2	830.0	290.0	1.9	1290.0	300.0	1.8
1480.0	310.0	0.7	1720.0	320.0	0.8	1600.0	330.0	0.6
1450.0	340.0	0.8	1380.0	350.0	0.8	1350.0	360.0	1.4

HIGH
24-HR
SGROUP# 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

- RNG -	- DIR -	CON.	(DAY,PER.)	- RNG -	- DIR -	CON.	(DAY,PER.)
1820.0	10.0	23.37503	(70, 1)	1910.0	20.0	19.54422	(359, 1)
2090.0	30.0	17.35145	(46, 1)	2550.0	40.0	11.40928	(123, 1)
3050.0	50.0	7.31434	(167, 1)	3450.0	60.0	4.90975	(79, 1)
3140.0	70.0	8.64830	(78, 1)	2980.0	80.0	5.28039	(91, 1)
2920.0	90.0	4.70035	(191, 1)	3450.0	100.0	5.22054	(125, 1)
3230.0	110.0	5.88160	(338, 1)	2950.0	120.0	8.08603	(261, 1)
3320.0	130.0	5.57586	(365, 1)	3420.0	140.0	2.01090	(46, 1)
4060.0	150.0	4.23306	(54, 1)	3350.0	160.0	4.55550	(308, 1)
3200.0	170.0	8.92577	(43, 1)	2650.0	180.0	7.58777	(59, 1)
2680.0	190.0	5.80140	(346, 1)	2520.0	200.0	12.78936	(353, 1)
2340.0	210.0	16.15210	(109, 1)	2520.0	220.0	12.26909	(118, 1)
2120.0	230.0	17.24056	(60, 1)	1910.0	240.0	17.23000	(101, 1)
1350.0	250.0	34.28626	(110, 1)	800.0	260.0	109.45177	(119, 1)
770.0	270.0	125.53348	(69, 1)	800.0	280.0	134.88159	(65, 1)
830.0	290.0	49.15978	(243, 1)	1290.0	300.0	40.98202	(62, 1)
1460.0	310.0	35.01443	(87, 1)	1720.0	320.0	32.74078	(15, 1)
1600.0	330.0	42.56602	(71, 1)	1450.0	340.0	27.61267	(211, 1)
1380.0	350.0	37.91442	(98, 1)	1350.0	360.0	35.96490	(329, 1)

2ND HIGH
24-HR
SGROUP# 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

- RNG -	- DIR -	CON.	(DAY,PER.)	- RNG -	- DIR -	CON.	(DAY,PER.)
1820.0	10.0	22.81396	(45, 1)	1910.0	20.0	4.94673	(98, 1)
2090.0	30.0	15.59438	(114, 1)	2550.0	40.0	5.76953	(83, 1)
3050.0	50.0	5.33905	(327, 1)	3450.0	60.0	3.75266	(88, 1)
3140.0	70.0	5.34130	(198, 1)	2980.0	80.0	3.59865	(113, 1)
2920.0	90.0	2.82625	(42, 1)	3450.0	100.0	4.41823	(5, 1)
3230.0	110.0	2.95852	(76, 1)	2950.0	120.0	7.15076	(44, 1)
3320.0	130.0	4.37361	(11, 1)	3420.0	140.0	1.13071	(315, 1)
4060.0	150.0	2.56162	(317, 1)	3350.0	160.0	4.50857	(315, 1)
3200.0	170.0	4.75913	(172, 1)	2650.0	180.0	7.23967	(220, 1)
2660.0	190.0	5.74024	(233, 1)	2520.0	200.0	9.10184	(97, 1)
2340.0	210.0	14.45641	(108, 1)	2520.0	220.0	8.99252	(222, 1)
2120.0	230.0	14.14162	(199, 1)	1910.0	240.0	11.89045	(66, 1)
1350.0	250.0	34.07455	(165, 1)	800.0	260.0	42.81771	(1, 1)
770.0	270.0	83.82448	(44, 1)	800.0	280.0	82.76976	(61, 1)
830.0	290.0	42.18530	(108, 1)	1290.0	300.0	37.90875	(24, 1)
1480.0	310.0	12.73256	(185, 1)	1720.0	320.0	27.74776	(64, 1)
1600.0	330.0	9.17467	(93, 1)	1450.0	340.0	19.64744	(113, 1)
1380.0	350.0	24.77826	(121, 1)	1350.0	360.0	34.70951	(15, 1)

MAX 50
24-HR
SGROUP# 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

* 50 MAXIMUM 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM ALL SOURCES *

RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)	RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)
1	134.88159	1	65	800.0	280.0	26	35.96490	1	329	1350.0	360.0
2	125.53348	1	69	770.0	270.0	27	35.63935	1	112	800.0	260.0
3	109.45177	1	119	800.0	260.0	28	35.31789	1	111	770.0	270.0
4	83.62448	1	44	770.0	270.0	29	35.01443	1	87	1480.0	310.0
5	82.76976	1	61	800.0	280.0	30	34.70951	1	15	1350.0	360.0
6	76.31435	1	68	770.0	270.0	31	34.28626	1	110	1350.0	250.0
7	75.98244	1	120	800.0	280.0	32	34.07455	1	165	1350.0	250.0
8	63.77660	1	171	770.0	270.0	33	34.06058	1	112	770.0	270.0
9	61.23235	1	63	770.0	270.0	34	32.74078	1	15	1720.0	320.0
10	58.25205	1	60	800.0	280.0	35	32.53936	1	121	1290.0	300.0
11	57.56621	1	160	770.0	270.0	36	31.59167	1	6	770.0	270.0
12	54.06503	1	67	770.0	270.0	37	31.33858	1	16	1350.0	360.0
13	49.15978	1	243	830.0	290.0	38	30.53801	1	84	1290.0	300.0
14	46.39194	1	119	800.0	280.0	39	30.41434	1	47	770.0	270.0
15	43.64900	1	246	770.0	270.0	40	30.23238	1	308	800.0	260.0
16	42.61771	1	1	800.0	260.0	41	29.50395	1	142	800.0	260.0
17	42.56602	1	71	1600.0	330.0	42	29.42619	1	239	800.0	260.0
18	42.16530	1	108	830.0	290.0	43	28.18040	1	52	1350.0	250.0
19	41.29282	1	62	770.0	270.0	44	27.74776	1	64	1720.0	320.0
20	40.98202	1	62	1290.0	300.0	45	27.61267	1	211	1450.0	340.0
21	37.91442	1	98	1380.0	350.0	46	27.59324	1	221	1290.0	300.0
22	37.90675	1	24	1290.0	300.0	47	26.95892	1	142	770.0	270.0
23	37.77993	1	32	830.0	290.0	48	26.88847	1	242	770.0	270.0
24	36.96226	1	107	830.0	290.0	49	25.99648	1	2	1290.0	300.0
25	36.77768	1	102	830.0	290.0	50	25.38863	1	326	770.0	270.0

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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) = 2
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)	ISW(4) = 0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)	ISW(5) = 0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)	ISW(6) = 1
COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION) WITH THE FOLLOWING TIME PERIODS:	
HOURLY (YES=1,NO=0)	ISW(7) = 0
2-HOUR (YES=1,NO=0)	ISW(8) = 0
3-HOUR (YES=1,NO=0)	ISW(9) = 0
4-HOUR (YES=1,NO=0)	ISW(10) = 0
6-HOUR (YES=1,NO=0)	ISW(11) = 0
8-HOUR (YES=1,NO=0)	ISW(12) = 0
12-HOUR (YES=1,NO=0)	ISW(13) = 0
24-HOUR (YES=1,NO=0)	ISW(14) = 1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) = 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(16) = 1
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	NXHYPT = 36
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	IK =.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 = 7.10 METERS	
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET = 9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION DECAY =0.0000000E+00	
SURFACE STATION NO.	ISS = 12815
YEAR OF SURFACE DATA	ISY = 74
UPPER AIR STATION NO.	IUS = 12842
YEAR OF UPPER AIR DATA	IUY = 74
ALLOCATED DATA STORAGE	LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MINIT = 991 WORDS

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

*** 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

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

*** RANGE,THETA COORDINATES OF DISCRETE RECEPTORS ***
(METERS,DEGREES)

(	2020.,	10.),	(	2110.,	20.),	(	2290.,	30.),	(	2750.,	40.),	(	3250.,	50.),
(	3650.,	60.),	(	3340.,	70.),	(	3180.,	80.),	(	3120.,	90.),	(	3650.,	100.),
(	3430.,	110.),	(	3150.,	120.),	(	3520.,	130.),	(	3620.,	140.),	(	4260.,	150.),
(	3550.,	160.),	(	3400.,	170.),	(	2850.,	180.),	(	2880.,	190.),	(	2720.,	200.),
(	2540.,	210.),	(	2720.,	220.),	(	2320.,	230.),	(	2110.,	240.),	(	1550.,	250.),
(	1000.,	260.),	(	970.,	270.),	(	1000.,	280.),	(	1030.,	290.),	(	1490.,	300.),
(	1680.,	310.),	(	1920.,	320.),	(	1800.,	330.),	(	1650.,	340.),	(	1580.,	350.),
(	1550.,	360.),	(											

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

SOURCE # 1---BELT-TO-HOPPER, VOLUME SOURCE, 5X5X19.4
SOURCE # 2---HOPPER-TO-RAILCAR, VOLUME SOURCE,3X12X5.

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAK	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	1	0	10	0.610	0.	0.	0.0	9.68	9.0	1.20	0.00	0.0	0.0	0.0
2	1	0	10	0.160	0.	0.	0.0	2.74	2.6	1.40	0.00	0.0	0.0	0.0

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTON, FLORIDA ***

*** SOURCE PARTICULATE DATA ***

*** SOURCE NUMBER = 1 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.80000,

*** SOURCE NUMBER = 2 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.80000,

'N'-DAY
365 DAYS
SGROUP# 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- RNG -	- DIR -	CON.	- RNG -	- DIR -	CON.	- RNG -	- DIR -	CON.
2020.0	10.0	0.5	2110.0	20.0	0.3	2290.0	30.0	0.3
2750.0	40.0	0.2	3250.0	50.0	0.1	3650.0	60.0	0.1
3340.0	70.0	0.2	3180.0	80.0	0.1	3120.0	90.0	0.1
3650.0	100.0	0.1	3430.0	110.0	0.2	3150.0	120.0	0.2
3520.0	130.0	0.1	3620.0	140.0	0.1	4260.0	150.0	0.1
3550.0	160.0	0.1	3400.0	170.0	0.2	2850.0	180.0	0.6
2880.0	190.0	0.2	2720.0	200.0	0.6	2540.0	210.0	0.6
2720.0	220.0	0.6	2320.0	230.0	0.6	2110.0	240.0	0.6
1550.0	250.0	1.4	1000.0	260.0	2.0	970.0	270.0	2.8
1000.0	280.0	1.6	1030.0	290.0	1.4	1490.0	300.0	1.5
1680.0	310.0	0.6	1920.0	320.0	0.7	1800.0	330.0	0.5
1650.0	340.0	0.7	1580.0	350.0	0.7	1550.0	360.0	1.1

MAX 50
24-HR
SGROUP# 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

* 50 MAXIMUM 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM ALL SOURCES *

RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)	RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)
1	99.51489	1	65	1000.0	280.0	26	28.28230	1	165	1550.0	250.0
2	91.46854	1	69	970.0	270.0	27	28.24243	1	110	1550.0	250.0
3	60.51753	1	119	1000.0	260.0	28	27.81579	1	32	1030.0	290.0
4	60.56127	1	61	1000.0	280.0	29	27.79366	1	15	1920.0	320.0
5	60.14526	1	44	970.0	270.0	30	27.13842	1	107	1030.0	290.0
6	55.84604	1	68	970.0	270.0	31	27.05211	1	102	1030.0	290.0
7	55.15114	1	120	1000.0	280.0	32	26.26745	1	121	1490.0	300.0
8	46.24413	1	171	970.0	270.0	33	26.24492	1	112	1000.0	260.0
9	43.63524	1	63	970.0	270.0	34	25.74871	1	16	1550.0	360.0
10	42.84496	1	60	1000.0	280.0	35	25.60535	1	111	970.0	270.0
11	41.40234	1	160	970.0	270.0	36	24.57747	1	112	970.0	270.0
12	38.96339	1	67	970.0	270.0	37	24.49657	1	64	1490.0	300.0
13	35.83648	1	243	1030.0	290.0	38	23.50780	1	64	1920.0	320.0
14	35.60366	1	71	1800.0	330.0	39	23.13689	1	52	1550.0	250.0
15	33.56015	1	119	1000.0	280.0	40	22.93246	1	211	1650.0	340.0
16	32.67734	1	62	1490.0	300.0	41	22.43762	1	6	970.0	270.0
17	31.94122	1	246	970.0	270.0	42	22.12563	1	221	1490.0	300.0
18	31.71507	1	1	1000.0	260.0	43	21.99340	1	47	970.0	270.0
19	31.42859	1	98	1580.0	350.0	44	21.87910	1	308	1000.0	260.0
20	31.27908	1	108	1030.0	290.0	45	21.72657	1	142	1000.0	260.0
21	30.42912	1	24	1490.0	300.0	46	21.43652	1	239	1000.0	260.0
22	29.82553	1	62	970.0	270.0	47	20.80161	1	2	1490.0	300.0
23	29.78754	1	329	1550.0	360.0	48	20.61963	1	66	1550.0	250.0
24	29.38007	1	87	1680.0	310.0	49	20.49506	1	121	1580.0	350.0
25	28.59681	1	15	1550.0	360.0	50	19.91685	1	70	2020.0	10.0

HIGH
24-HR
SGROUP# 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

- RNG -	- DIR -	CON.	(DAY,PER.)	- RNG -	- DIR -	CON.	(DAY,PER.)
2020.0	10.0	19.91685	(70, 1)	2110.0	20.0	16.90698	(359, 1)
2290.0	30.0	15.05068	(46, 1)	2750.0	40.0	10.29119	(123, 1)
3250.0	50.0	6.67043	(167, 1)	3650.0	60.0	4.49065	(79, 1)
3340.0	70.0	7.84437	(78, 1)	3180.0	80.0	4.78986	(91, 1)
3120.0	90.0	4.24138	(191, 1)	3650.0	100.0	4.77536	(125, 1)
3430.0	110.0	5.37912	(338, 1)	3150.0	120.0	7.33690	(261, 1)
3520.0	130.0	5.07909	(365, 1)	3620.0	140.0	1.84781	(46, 1)
4260.0	150.0	3.94187	(54, 1)	3550.0	160.0	4.17276	(308, 1)
3400.0	170.0	8.13266	(43, 1)	2850.0	180.0	6.82148	(59, 1)
2680.0	190.0	5.17048	(233, 1)	2720.0	200.0	11.57313	(353, 1)
2540.0	210.0	14.27056	(109, 1)	2720.0	220.0	11.02571	(118, 1)
2320.0	230.0	14.96918	(60, 1)	2110.0	240.0	14.85693	(101, 1)
1550.0	250.0	28.28230	(165, 1)	1000.0	260.0	80.51753	(119, 1)
970.0	270.0	91.46854	(69, 1)	1000.0	280.0	99.51489	(65, 1)
1030.0	290.0	35.83648	(243, 1)	1490.0	300.0	32.67734	(62, 1)
1680.0	310.0	29.38007	(67, 1)	1920.0	320.0	27.79366	(15, 1)
1800.0	330.0	35.80366	(71, 1)	1650.0	340.0	22.93246	(211, 1)
1560.0	350.0	31.42859	(98, 1)	1550.0	360.0	29.78754	(329, 1)

2ND HIGH
24-HR
SGROUP= 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

- RNG -	- DIR -	CON.	(DAY,PER.)	- RNG -	- DIR -	CON.	(DAY,PER.)
2020.0	10.0	19.44424	(45, 1)	2110.0	20.0	4.26867	(98, 1)
2290.0	30.0	13.61157	(114, 1)	2750.0	40.0	5.14889	(83, 1)
3250.0	50.0	4.86370	(327, 1)	3650.0	60.0	3.44221	(88, 1)
3340.0	70.0	4.87395	(198, 1)	3180.0	80.0	3.26715	(113, 1)
3120.0	90.0	2.53717	(41, 1)	3650.0	100.0	4.04625	(5, 1)
3430.0	110.0	2.71434	(316, 1)	3150.0	120.0	6.47626	(44, 1)
3520.0	130.0	4.00750	(11, 1)	3620.0	140.0	1.04231	(315, 1)
4260.0	150.0	2.37787	(317, 1)	3550.0	160.0	4.13275	(315, 1)
3400.0	170.0	4.33119	(172, 1)	2850.0	180.0	6.46927	(220, 1)
2880.0	190.0	5.15662	(346, 1)	2720.0	200.0	8.19607	(97, 1)
2540.0	210.0	12.77316	(108, 1)	2720.0	220.0	8.09851	(222, 1)
2320.0	230.0	12.22168	(199, 1)	2110.0	240.0	10.21615	(66, 1)
1550.0	250.0	28.24243	(110, 1)	1000.0	260.0	31.71507	(1, 1)
970.0	270.0	60.14526	(44, 1)	1000.0	280.0	60.56127	(61, 1)
1030.0	290.0	31.27908	(108, 1)	1490.0	300.0	30.42912	(24, 1)
1680.0	310.0	10.80824	(185, 1)	1920.0	320.0	23.50780	(64, 1)
1800.0	330.0	7.71075	(93, 1)	1650.0	340.0	16.49341	(113, 1)
1580.0	350.0	20.49506	(121, 1)	1550.0	360.0	28.59681	(15, 1)

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M FOR SOURCE GROUP 1

* FOR THE DISCRETE RECEPTOR POINTS *

- RNG -	- DIR -	CON.	(DAY,PER.)	- RNG -	- DIR -	CON.	(DAY,PER.)
1820.0	10.0	23.4		1910.0	20.0	19.5	
2090.0	30.0	17.4		2550.0	40.0	11.4	
3050.0	50.0	7.3		3450.0	60.0	4.9	
3140.0	70.0	8.6		2980.0	80.0	5.3	
2920.0	90.0	4.7		3450.0	100.0	5.2	
3230.0	110.0	5.9		2950.0	120.0	8.1	
3320.0	130.0	5.6		3420.0	140.0	2.0	
4060.0	150.0	4.2		3350.0	160.0	4.6	
3200.0	170.0	8.9		2650.0	180.0	7.6	
2680.0	190.0	5.8		2520.0	200.0	12.8	
2340.0	210.0	16.2		2520.0	220.0	12.3	
2120.0	230.0	17.2		1910.0	240.0	17.2	
1350.0	250.0	34.3		800.0	260.0	109.5	
770.0	270.0	125.5		800.0	280.0	134.9	
830.0	290.0	49.2		1290.0	300.0	41.0	
1480.0	310.0	35.0		1720.0	320.0	32.7	
1600.0	330.0	42.6		1450.0	340.0	27.6	
1380.0	350.0	37.9		1350.0	360.0	36.0	

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M FOR SOURCE GROUP 1

* FOR THE DISCRETE RECEPTOR POINTS *

- RNG -	- DIR -	CON.	(DAY,PER.)	- RNG -	- DIR -	CON.	(DAY,PER.)
2020.0	10.0	19.9		2110.0	20.0	16.9	
2290.0	30.0	15.1		2750.0	40.0	10.3	
3250.0	50.0	6.7		3650.0	60.0	4.5	
3340.0	70.0	7.8		3180.0	80.0	4.8	
3120.0	90.0	4.2		3650.0	100.0	4.8	
3430.0	110.0	5.4		3150.0	120.0	7.3	
3520.0	130.0	5.1		3620.0	140.0	1.8	
4260.0	150.0	3.9		3550.0	160.0	4.2	
3400.0	170.0	8.1		2850.0	180.0	6.8	
2880.0	190.0	5.2		2720.0	200.0	11.6	
2540.0	210.0	14.3		2720.0	220.0	11.0	
2320.0	230.0	15.0		2110.0	240.0	14.9	
1550.0	250.0	28.3		1000.0	260.0	80.5	
970.0	270.0	91.5		1000.0	280.0	99.5	
1030.0	290.0	35.8		1490.0	300.0	32.9	
1680.0	310.0	29.4		1920.0	320.0	27.8	
1800.0	330.0	35.8		1650.0	340.0	22.9	
1580.0	350.0	31.4		1550.0	360.0	29.8	

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

* FOR THE DISCRETE RECEPTOR POINTS *

- RNG -	- DIR -	CON.	(DAY,PER.)	- RNG -	- DIR -	CON.	(DAY,PER.)
1820.0	10.0	22.8		1910.0	20.0	4.9	
2090.0	30.0	15.6		2550.0	40.0	5.8	
3050.0	50.0	5.3		3450.0	60.0	3.8	
3140.0	70.0	5.3		2980.0	80.0	3.6	
2920.0	90.0	2.8		3450.0	100.0	4.4	
3230.0	110.0	3.0		2950.0	120.0	7.2	
3320.0	130.0	4.4		3420.0	140.0	1.1	
4060.0	150.0	2.6		3350.0	160.0	4.5	
3200.0	170.0	4.8		2650.0	180.0	7.2	
2680.0	190.0	5.7		2520.0	200.0	9.1	
2340.0	210.0	14.5		2520.0	220.0	9.0	
2120.0	230.0	14.1		1910.0	240.0	11.9	
1350.0	250.0	34.1		800.0	260.0	42.8	
770.0	270.0	83.8		800.0	280.0	82.6	
830.0	290.0	42.2		1290.0	300.0	37.9	
1480.0	310.0	12.7		1720.0	320.0	27.7	
1600.0	330.0	9.2		1450.0	340.0	19.6	
1380.0	350.0	24.8		1350.0	360.0	34.7	

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

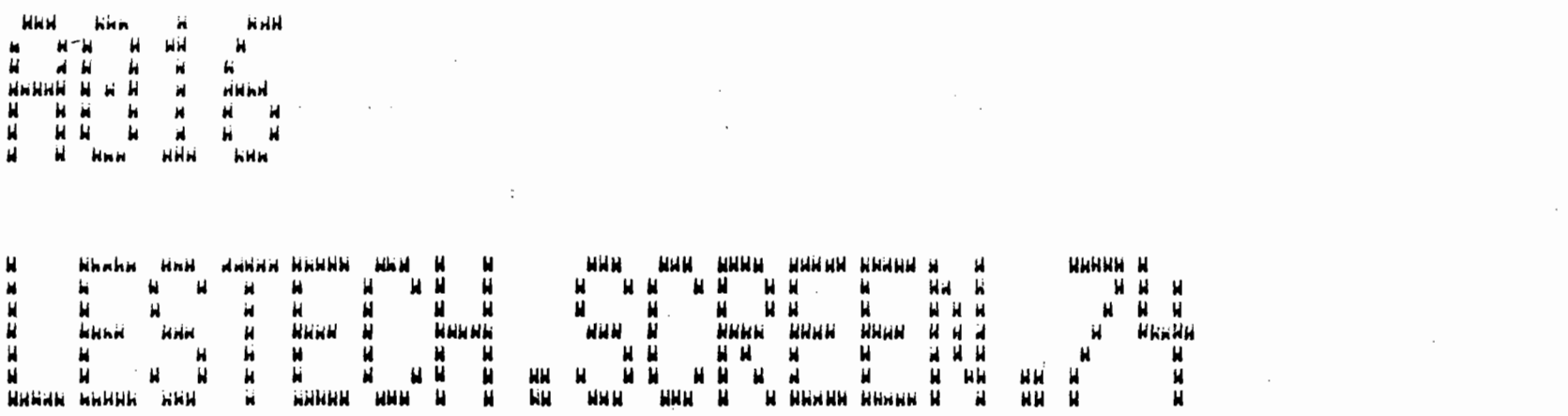
COMPOSITE SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

* FOR THE DISCRETE RECEPTOR POINTS *

- RNG -	- DIR -	CON. (DAY,PER.)	- RNG -	- DIR -	CON. (DAY,PER.)
2020.0	10.0	19.4	2110.0	20.0	4.3
2290.0	30.0	13.6	2750.0	40.0	5.1
3250.0	50.0	4.9	3650.0	60.0	3.4
3340.0	70.0	4.9	3180.0	80.0	3.3
3120.0	90.0	2.5	3650.0	100.0	4.0
3430.0	110.0	2.7	3150.0	120.0	6.5
3520.0	130.0	4.0	3620.0	140.0	1.0
4260.0	150.0	2.4	3550.0	160.0	4.1
3400.0	170.0	4.3	2850.0	180.0	6.5
2880.0	190.0	5.2	2720.0	200.0	8.2
2540.0	210.0	12.8	2720.0	220.0	8.1
2320.0	230.0	12.2	2110.0	240.0	10.2
1550.0	250.0	28.2	1000.0	260.0	31.7
970.0	270.0	60.1	1000.0	280.0	60.6
1030.0	290.0	31.3	1490.0	300.0	30.4
1680.0	310.0	10.8	1920.0	320.0	23.5
1800.0	330.0	7.7	1650.0	340.0	16.5
1580.0	350.0	20.5	1550.0	360.0	28.6

USER: AD16 -AT

<ESEACT>AD16>LESTECH.SCREEN.74



LABEL: PRT013 -FORM PR1

PATHNAME: <ESEACT>AD16>LESTECH.SCREEN.74
FILE LAST MODIFIED: 86-11-11.11:57:12.TUE

SPOOLED: 86-11-11.12:04:52.TUE ESPOOLER REV 19.4.51
STARTED: 86-11-11.12:05:00.TUE ON: PR1 BY: PR1

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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) = 0
4-HOUR (YES=1,NO=0)	ISW(10) = 0
6-HOUR (YES=1,NO=0)	ISW(11) = 0
8-HOUR (YES=1,NO=0)	ISW(12) = 0
12-HOUR (YES=1,NO=0)	ISW(13) = 0
24-HOUR (YES=1,NO=0)	ISW(14) = 1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) = 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) = 1
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 = 8
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 = 7.10 METERS	
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET = 9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION DECAY =0.000000E+00	
SURFACE STATION NO.	ISS = 12815
YEAR OF SURFACE DATA	ISY = 74
UPPER AIR STATION NO.	IUS = 12842
YEAR OF UPPER AIR DATA	IUY = 74
ALLOCATED DATA STORAGE	LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT = 2979 WORDS

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

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1111111111 1111111111 1111111111 1111111111 1111111111
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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

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

150., 200., 300., 500., 700., 1500., 3000., 5000.,

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

(DEGREES)

10., 20., 30., 40., 50., 60., 70., 80., 90., 100.,
110., 120., 130., 140., 150., 160., 170., 180., 190., 200.,
210., 220., 230., 240., 250., 260., 270., 280., 290., 300.,
310., 320., 330., 340., 350., 360.,

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTON, FLORIDA ***

SOURCE # 1---BELT-TO-HOPPER, VOLUME SOURCE, 5X5X19.4
SOURCE # 2---HOPPER-TO-RAILCAR, VOLUME SOURCE,3X12X5.

*** SOURCE DATA ***

SOURCE NUMBER	EMISSION RATE TYPE	WAKE TYPE	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	1	0	10	0.610	0.	0.	0.0	9.68	9.0	1.20	0.00	0.0	0.0	0.0
2	1	0	10	0.160	0.	0.	0.0	2.74	2.6	1.40	0.00	0.0	0.0	0.0

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

*** SOURCE PARTICULATE DATA ***

*** SOURCE NUMBER = 1 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.80000,

*** SOURCE NUMBER = 2 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.80000,

"N"-DAY
365 DAYS
SGRUUP# 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 36.9 AND OCCURRED AT (150.0, 160.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0	1500.0	3000.0	5000.0
360.0 /	27.4	19.4	11.5	5.7	3.6	1.2	0.4	0.2
350.0 /	19.1	13.3	7.7	3.8	2.3	0.7	0.3	0.1
340.0 /	20.1	14.1	8.3	4.1	2.5	0.8	0.3	0.1
330.0 /	17.8	12.4	7.2	3.5	2.2	0.7	0.2	0.1
320.0 /	24.1	17.0	10.1	5.0	3.1	1.0	0.4	0.2
310.0 /	16.4	12.7	7.3	3.5	2.1	0.7	0.2	0.1
300.0 /	34.9	24.6	14.6	7.3	4.5	1.4	0.5	0.2
290.0 /	20.6	14.3	8.3	4.1	2.5	0.8	0.3	0.1
280.0 /	22.2	15.4	9.0	4.4	2.7	0.9	0.3	0.1
270.0 /	34.8	24.5	14.5	7.2	4.5	1.4	0.5	0.2
260.0 /	26.8	18.7	11.0	5.4	3.4	1.1	0.4	0.2
250.0 /	33.8	23.8	14.1	7.0	4.4	1.4	0.5	0.2
240.0 /	27.0	18.8	11.0	5.4	3.3	1.1	0.4	0.2
230.0 /	31.2	21.7	12.7	6.2	3.8	1.2	0.4	0.2
220.0 /	34.0	23.8	14.0	6.9	4.3	1.4	0.5	0.2
210.0 /	31.8	22.3	13.1	6.5	4.0	1.3	0.5	0.2
200.0 /	32.6	23.0	13.7	6.8	4.3	1.4	0.5	0.2
190.0 /	19.5	13.3	7.6	3.6	2.2	0.7	0.2	0.1
180.0 /	36.9	26.0	15.5	7.7	4.8	1.6	0.5	0.3
170.0 /	19.0	13.1	7.6	3.7	2.2	0.7	0.2	0.1
160.0 /	12.8	8.8	5.1	2.5	1.5	0.5	0.2	0.1
150.0 /	10.3	7.1	4.1	1.9	1.2	0.4	0.1	0.1
140.0 /	8.5	5.7	3.2	1.5	0.9	0.3	0.1	0.0
130.0 /	12.6	8.7	5.0	2.4	1.4	0.4	0.2	0.1
120.0 /	16.7	11.6	6.8	3.3	2.0	0.6	0.2	0.1
110.0 /	15.2	10.5	6.1	2.9	1.8	0.6	0.2	0.1
100.0 /	12.8	8.8	5.1	2.5	1.5	0.5	0.2	0.1
90.0 /	12.7	8.7	5.0	2.4	1.5	0.5	0.2	0.1
80.0 /	13.2	9.1	5.2	2.5	1.5	0.5	0.2	0.1
70.0 /	15.7	10.8	6.2	3.0	1.8	0.6	0.2	0.1
60.0 /	15.6	10.8	6.3	3.1	1.9	0.6	0.2	0.1
50.0 /	12.0	8.3	4.8	2.3	1.4	0.4	0.2	0.1
40.0 /	13.4	9.4	5.5	2.7	1.6	0.5	0.2	0.1
30.0 /	14.4	10.0	5.8	2.8	1.7	0.5	0.2	0.1
20.0 /	12.9	8.8	5.1	2.4	1.5	0.5	0.2	0.1
10.0 /	20.3	14.1	8.1	3.9	2.4	0.8	0.3	0.1

HIGH
24-HR
SGROUP# 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 1005.7 AND OCCURRED AT (150.0, 280.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	592.8 (15, 1)	432.8 (329, 1)	267.5 (329, 1)	140.0 (329, 1)	90.4 (329, 1)
350.0 /	667.9 (98, 1)	487.6 (98, 1)	299.4 (98, 1)	155.6 (98, 1)	99.9 (98, 1)
340.0 /	600.6 (211, 1)	429.9 (211, 1)	257.6 (211, 1)	129.9 (211, 1)	81.7 (211, 1)
330.0 /	810.5 (71, 1)	603.8 (71, 1)	379.9 (71, 1)	203.3 (71, 1)	132.8 (71, 1)
320.0 /	718.7 (15, 1)	531.9 (15, 1)	332.1 (15, 1)	176.3 (15, 1)	114.7 (15, 1)
310.0 /	675.5 (87, 1)	493.4 (87, 1)	304.0 (87, 1)	158.0 (87, 1)	101.6 (87, 1)
300.0 /	710.5 (62, 1)	510.8 (62, 1)	308.0 (62, 1)	156.7 (62, 1)	99.4 (62, 1)
290.0 /	461.0 (243, 1)	330.4 (243, 1)	197.9 (243, 1)	99.9 (243, 1)	62.8 (243, 1)
280.0 /	1005.7 (65, 1)	744.9 (65, 1)	466.5 (65, 1)	248.0 (65, 1)	161.2 (65, 1)
270.0 /	920.0 (69, 1)	677.0 (69, 1)	420.0 (69, 1)	220.8 (69, 1)	142.8 (69, 1)
260.0 /	842.1 (119, 1)	619.9 (119, 1)	385.1 (119, 1)	202.5 (119, 1)	131.0 (119, 1)
250.0 /	639.9 (110, 1)	458.9 (110, 1)	276.2 (110, 1)	140.7 (110, 1)	89.1 (110, 1)
240.0 /	505.1 (101, 1)	363.4 (101, 1)	220.2 (101, 1)	113.3 (101, 1)	72.4 (101, 1)
230.0 /	638.1 (60, 1)	458.7 (60, 1)	276.2 (60, 1)	140.4 (60, 1)	89.0 (60, 1)
220.0 /	559.4 (118, 1)	404.7 (118, 1)	246.0 (118, 1)	126.4 (118, 1)	80.7 (118, 1)
210.0 /	608.9 (109, 1)	441.8 (109, 1)	270.0 (109, 1)	140.2 (109, 1)	90.4 (109, 1)
200.0 /	458.7 (353, 1)	343.0 (353, 1)	217.5 (353, 1)	116.8 (353, 1)	76.2 (353, 1)
190.0 /	371.4 (346, 1)	262.3 (346, 1)	154.0 (346, 1)	75.9 (346, 1)	47.0 (346, 1)
180.0 /	402.2 (85, 1)	283.8 (85, 1)	167.7 (85, 1)	82.1 (85, 1)	51.3 (220, 1)
170.0 /	567.8 (43, 1)	413.0 (43, 1)	252.8 (43, 1)	130.5 (43, 1)	83.2 (43, 1)
160.0 /	293.3 (308, 1)	214.0 (308, 1)	131.6 (308, 1)	68.7 (308, 1)	44.2 (308, 1)
150.0 /	301.1 (54, 1)	225.5 (54, 1)	143.1 (54, 1)	77.2 (54, 1)	50.5 (54, 1)
140.0 /	169.8 (362, 1)	113.7 (362, 1)	62.7 (362, 1)	29.2 (46, 1)	19.1 (46, 1)
130.0 /	455.2 (365, 1)	323.3 (365, 1)	191.9 (365, 1)	95.8 (365, 1)	60.0 (365, 1)
120.0 /	407.0 (261, 1)	299.8 (261, 1)	186.3 (261, 1)	98.1 (261, 1)	63.3 (261, 1)
110.0 /	330.0 (338, 1)	243.6 (338, 1)	152.2 (338, 1)	80.7 (338, 1)	52.2 (338, 1)
100.0 /	440.0 (125, 1)	313.0 (125, 1)	186.4 (125, 1)	93.2 (125, 1)	58.4 (125, 1)
90.0 /	294.6 (191, 1)	210.5 (191, 1)	125.9 (191, 1)	63.5 (191, 1)	40.1 (191, 1)
80.0 /	311.9 (49, 1)	214.7 (49, 1)	126.4 (91, 1)	66.2 (91, 1)	42.7 (91, 1)
70.0 /	617.3 (78, 1)	441.6 (78, 1)	264.0 (78, 1)	133.2 (78, 1)	84.0 (78, 1)
60.0 /	415.7 (79, 1)	295.7 (79, 1)	176.0 (79, 1)	88.3 (79, 1)	55.3 (79, 1)
50.0 /	351.0 (51, 1)	251.4 (51, 1)	159.0 (167, 1)	86.0 (167, 1)	56.4 (167, 1)
40.0 /	477.2 (123, 1)	351.0 (123, 1)	217.8 (123, 1)	114.1 (123, 1)	73.5 (123, 1)
30.0 /	632.9 (46, 1)	454.4 (46, 1)	273.4 (46, 1)	138.5 (46, 1)	87.3 (46, 1)
20.0 /	484.1 (359, 1)	359.9 (359, 1)	226.7 (359, 1)	121.2 (359, 1)	79.0 (359, 1)
10.0 /	696.6 (70, 1)	498.6 (70, 1)	299.2 (70, 1)	150.9 (70, 1)	95.1 (70, 1)

HIGH
24-HR
SGROUP# 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 1005.7 AND OCCURRED AT (150.0, 280.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	30.8 (329, 1)	11.3 (329, 1)	5.2 (329, 1)
350.0 /	33.4 (98, 1)	12.0 (98, 1)	5.5 (98, 1)
340.0 /	26.2 (211, 1)	9.0 (211, 1)	4.0 (211, 1)
330.0 /	45.9 (71, 1)	17.0 (71, 1)	7.9 (71, 1)
320.0 /	39.4 (15, 1)	14.4 (15, 1)	6.7 (15, 1)
310.0 /	34.3 (87, 1)	12.4 (87, 1)	5.7 (87, 1)
300.0 /	32.5 (62, 1)	11.5 (62, 1)	5.2 (62, 1)
290.0 /	20.1 (243, 1)	6.9 (243, 1)	3.1 (243, 1)
280.0 /	55.6 (65, 1)	20.6 (65, 1)	9.6 (65, 1)
270.0 /	46.6 (69, 1)	17.7 (69, 1)	8.2 (69, 1)
260.0 /	44.8 (119, 1)	16.4 (119, 1)	7.6 (119, 1)
250.0 /	29.2 (110, 1)	10.8 (165, 1)	5.0 (165, 1)
240.0 /	24.3 (101, 1)	8.8 (101, 1)	4.1 (101, 1)
230.0 /	28.9 (60, 1)	10.1 (60, 1)	4.5 (60, 1)
220.0 /	26.7 (118, 1)	9.5 (118, 1)	4.3 (118, 1)
210.0 /	30.7 (109, 1)	11.3 (109, 1)	5.3 (109, 1)
200.0 /	26.7 (353, 1)	10.0 (353, 1)	4.7 (353, 1)
190.0 /	14.6 (346, 1)	4.9 (233, 1)	2.3 (233, 1)
180.0 /	17.0 (59, 1)	6.3 (59, 1)	3.0 (59, 1)
170.0 /	27.6 (43, 1)	9.9 (43, 1)	4.5 (43, 1)
160.0 /	14.8 (308, 1)	5.4 (308, 1)	2.5 (308, 1)
150.0 /	17.6 (54, 1)	6.6 (54, 1)	3.1 (54, 1)
140.0 /	6.6 (46, 1)	2.4 (46, 1)	1.1 (46, 1)
130.0 /	19.1 (365, 1)	6.5 (365, 1)	2.9 (365, 1)
120.0 /	21.6 (261, 1)	7.9 (261, 1)	3.6 (261, 1)
110.0 /	17.6 (338, 1)	6.6 (338, 1)	3.0 (338, 1)
100.0 /	18.6 (125, 1)	6.5 (125, 1)	2.9 (125, 1)
90.0 /	12.9 (191, 1)	4.5 (191, 1)	2.0 (191, 1)
80.0 /	14.4 (91, 1)	5.2 (91, 1)	2.4 (91, 1)
70.0 /	26.9 (78, 1)	9.3 (78, 1)	4.1 (78, 1)
60.0 /	17.6 (79, 1)	6.1 (79, 1)	2.7 (79, 1)
50.0 /	19.9 (167, 1)	7.5 (167, 1)	3.5 (167, 1)
40.0 /	24.9 (123, 1)	9.0 (123, 1)	4.1 (123, 1)
30.0 /	28.4 (46, 1)	10.0 (46, 1)	4.5 (46, 1)
20.0 /	27.4 (359, 1)	10.2 (359, 1)	4.8 (359, 1)
10.0 /	31.0 (70, 1)	10.9 (70, 1)	4.9 (70, 1)

2ND HIGH
24-HR
SGROUP# 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 714.2 AND OCCURRED AT (150.0, 270.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	591.3 (329, 1)	432.4 (15, 1)	266.0 (15, 1)	137.6 (15, 1)	88.2 (15, 1)
350.0 /	474.6 (121, 1)	339.9 (121, 1)	204.4 (121, 1)	104.2 (121, 1)	66.3 (121, 1)
340.0 /	365.2 (113, 1)	266.8 (113, 1)	164.0 (113, 1)	85.7 (113, 1)	55.3 (113, 1)
330.0 /	229.1 (70, 1)	162.8 (70, 1)	96.9 (70, 1)	48.6 (70, 1)	30.6 (70, 1)
320.0 /	695.7 (64, 1)	503.2 (64, 1)	306.0 (64, 1)	157.5 (64, 1)	100.7 (64, 1)
310.0 /	214.0 (185, 1)	159.8 (185, 1)	101.2 (185, 1)	54.4 (185, 1)	35.6 (185, 1)
300.0 /	632.1 (24, 1)	458.4 (24, 1)	279.3 (24, 1)	143.8 (24, 1)	91.6 (24, 1)
290.0 /	337.2 (107, 1)	248.3 (108, 1)	154.9 (108, 1)	81.9 (108, 1)	53.1 (108, 1)
280.0 /	684.6 (61, 1)	494.8 (61, 1)	300.9 (61, 1)	155.2 (61, 1)	99.3 (61, 1)
270.0 /	714.2 (44, 1)	509.4 (44, 1)	303.9 (44, 1)	152.7 (44, 1)	96.1 (44, 1)
260.0 /	304.6 (1, 1)	227.9 (1, 1)	144.5 (1, 1)	77.9 (1, 1)	51.0 (1, 1)
250.0 /	538.2 (165, 1)	397.6 (165, 1)	248.1 (165, 1)	131.4 (165, 1)	85.1 (165, 1)
240.0 /	358.3 (66, 1)	258.6 (66, 1)	156.6 (66, 1)	80.3 (66, 1)	51.2 (66, 1)
230.0 /	608.2 (199, 1)	428.6 (199, 1)	251.8 (199, 1)	124.2 (199, 1)	77.2 (199, 1)
220.0 /	362.4 (222, 1)	267.8 (222, 1)	166.8 (222, 1)	88.0 (222, 1)	57.0 (222, 1)
210.0 /	523.1 (108, 1)	384.1 (108, 1)	237.9 (108, 1)	124.8 (108, 1)	80.7 (108, 1)
200.0 /	425.0 (128, 1)	302.9 (128, 1)	179.9 (128, 1)	90.9 (97, 1)	58.3 (97, 1)
190.0 /	230.5 (233, 1)	170.6 (233, 1)	107.4 (233, 1)	57.4 (233, 1)	37.4 (233, 1)
180.0 /	355.0 (115, 1)	254.2 (115, 1)	154.8 (220, 1)	80.2 (220, 1)	50.6 (85, 1)
170.0 /	345.8 (172, 1)	246.2 (172, 1)	147.1 (172, 1)	73.9 (172, 1)	46.4 (172, 1)
160.0 /	290.2 (127, 1)	212.2 (127, 1)	130.5 (127, 1)	67.7 (127, 1)	43.4 (127, 1)
150.0 /	228.9 (55, 1)	166.5 (55, 1)	101.9 (55, 1)	52.9 (55, 1)	34.0 (317, 1)
140.0 /	116.2 (46, 1)	86.7 (46, 1)	54.6 (46, 1)	28.4 (362, 1)	16.7 (362, 1)
130.0 /	274.9 (124, 1)	196.4 (124, 1)	117.4 (124, 1)	62.2 (11, 1)	40.5 (11, 1)
120.0 /	383.1 (292, 1)	279.3 (44, 1)	172.4 (44, 1)	90.0 (44, 1)	57.9 (44, 1)
110.0 /	211.1 (355, 1)	144.2 (355, 1)	81.6 (76, 1)	42.3 (76, 1)	26.9 (76, 1)
100.0 /	344.3 (5, 1)	247.6 (5, 1)	149.1 (5, 1)	75.9 (5, 1)	48.1 (5, 1)
90.0 /	246.5 (42, 1)	170.7 (42, 1)	97.6 (42, 1)	46.7 (42, 1)	28.5 (42, 1)
80.0 /	280.3 (91, 1)	205.2 (91, 1)	121.5 (49, 1)	57.2 (49, 1)	34.4 (49, 1)
70.0 /	510.3 (90, 1)	347.5 (90, 1)	194.8 (90, 1)	90.9 (90, 1)	54.5 (90, 1)
60.0 /	296.7 (88, 1)	211.4 (88, 1)	126.9 (88, 1)	63.7 (88, 1)	39.9 (88, 1)
50.0 /	332.8 (167, 1)	249.8 (167, 1)	150.4 (51, 1)	76.0 (51, 1)	47.9 (51, 1)
40.0 /	343.0 (83, 1)	241.2 (83, 1)	141.5 (83, 1)	69.4 (83, 1)	43.1 (83, 1)
30.0 /	452.4 (114, 1)	334.6 (114, 1)	209.1 (114, 1)	111.1 (114, 1)	72.2 (114, 1)
20.0 /	132.9 (98, 1)	97.0 (98, 1)	59.9 (98, 1)	31.5 (98, 1)	20.4 (98, 1)
10.0 /	674.2 (45, 1)	482.2 (45, 1)	289.1 (45, 1)	146.2 (45, 1)	92.4 (45, 1)

2ND HIGH
24-HR
SGROUP= 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 714.2 AND OCCURRED AT (150.0, 270.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	29.6 (15, 1)	10.7 (15, 1)	4.9 (15, 1)
350.0 /	21.8 (121, 1)	7.8 (121, 1)	3.5 (121, 1)
340.0 /	18.7 (113, 1)	6.8 (113, 1)	3.1 (113, 1)
330.0 /	9.9 (93, 1)	3.6 (93, 1)	1.7 (309, 1)
320.0 /	33.6 (64, 1)	12.1 (64, 1)	5.5 (64, 1)
310.0 /	12.5 (185, 1)	4.7 (185, 1)	2.2 (185, 1)
300.0 /	30.1 (24, 1)	10.7 (24, 1)	4.8 (24, 1)
290.0 /	18.1 (108, 1)	6.5 (108, 1)	3.0 (108, 1)
280.0 /	33.4 (61, 1)	12.1 (61, 1)	5.6 (61, 1)
270.0 /	31.1 (44, 1)	10.8 (44, 1)	4.9 (44, 1)
260.0 /	17.6 (1, 1)	6.7 (1, 1)	3.1 (1, 1)
250.0 /	29.2 (165, 1)	10.3 (110, 1)	4.7 (110, 1)
240.0 /	16.9 (66, 1)	6.0 (66, 1)	2.7 (66, 1)
230.0 /	24.2 (199, 1)	8.2 (199, 1)	3.6 (59, 1)
220.0 /	19.3 (222, 1)	7.0 (222, 1)	3.2 (222, 1)
210.0 /	27.5 (108, 1)	10.1 (108, 1)	4.7 (108, 1)
200.0 /	19.6 (97, 1)	7.1 (97, 1)	3.3 (97, 1)
190.0 /	13.0 (233, 1)	4.8 (346, 1)	2.1 (346, 1)
180.0 /	16.9 (220, 1)	6.0 (220, 1)	2.7 (49, 1)
170.0 /	15.0 (172, 1)	5.3 (172, 1)	2.4 (172, 1)
160.0 /	14.5 (127, 1)	5.3 (315, 1)	2.5 (315, 1)
150.0 /	11.4 (317, 1)	4.1 (317, 1)	1.9 (317, 1)
140.0 /	4.6 (362, 1)	1.4 (362, 1)	0.7 (315, 1)
130.0 /	13.9 (11, 1)	5.1 (11, 1)	2.4 (11, 1)
120.0 /	19.4 (44, 1)	7.0 (44, 1)	3.2 (44, 1)
110.0 /	9.0 (76, 1)	3.3 (76, 1)	1.7 (316, 1)
100.0 /	15.7 (5, 1)	5.5 (5, 1)	2.5 (5, 1)
90.0 /	8.4 (42, 1)	2.7 (42, 1)	1.2 (41, 1)
80.0 /	9.9 (49, 1)	3.6 (113, 1)	1.7 (113, 1)
70.0 /	15.8 (90, 1)	5.7 (198, 1)	2.7 (198, 1)
60.0 /	13.1 (86, 1)	4.6 (88, 1)	2.1 (88, 1)
50.0 /	15.3 (51, 1)	5.5 (327, 1)	2.6 (327, 1)
40.0 /	13.4 (83, 1)	4.5 (83, 1)	2.0 (78, 1)
30.0 /	24.9 (114, 1)	9.2 (114, 1)	4.3 (114, 1)
20.0 /	7.0 (98, 1)	2.5 (98, 1)	1.2 (98, 1)
10.0 /	30.2 (45, 1)	10.6 (45, 1)	4.8 (45, 1)

MAX 50
24-HR
SGROUP# 1
YEAR 1974
*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

* 50 MAXIMUM 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM ALL SOURCES *

RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)	RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)
1	1005.68749	1	65	150.0	280.0	26	603.84338	1	71	200.0	330.0
2	919.96650	1	69	150.0	270.0	27	600.56897	1	211	150.0	340.0
3	842.12732	1	119	150.0	260.0	28	592.75281	1	15	150.0	360.0
4	810.53491	1	71	150.0	330.0	29	591.29712	1	329	150.0	360.0
5	744.87927	1	65	200.0	280.0	30	589.12097	1	16	150.0	360.0
6	718.74255	1	15	150.0	320.0	31	567.77026	1	43	150.0	170.0
7	714.24853	1	44	150.0	270.0	32	559.39844	1	118	150.0	220.0
8	710.48852	1	62	150.0	300.0	33	542.24475	1	63	150.0	270.0
9	696.62146	1	70	150.0	10.0	34	538.19006	1	165	150.0	250.0
10	695.71997	1	64	150.0	320.0	35	534.76453	1	52	150.0	250.0
11	684.63647	1	61	150.0	280.0	36	531.86792	1	15	200.0	320.0
12	676.98230	1	69	200.0	270.0	37	523.05737	1	108	150.0	210.0
13	675.47839	1	87	150.0	310.0	38	514.19685	1	84	150.0	300.0
14	674.24109	1	45	150.0	10.0	39	510.76800	1	62	200.0	300.0
15	668.36757	1	68	150.0	270.0	40	510.28754	1	90	150.0	70.0
16	667.88721	1	98	150.0	350.0	41	509.37691	1	44	200.0	270.0
17	646.91968	1	120	150.0	280.0	42	507.88568	1	117	150.0	210.0
18	639.92151	1	110	150.0	250.0	43	505.08679	1	101	150.0	240.0
19	638.14221	1	60	150.0	230.0	44	503.20044	1	64	200.0	320.0
20	632.93249	1	46	150.0	30.0	45	498.63959	1	70	200.0	10.0
21	632.14233	1	24	150.0	300.0	46	498.52429	1	121	150.0	300.0
22	619.94971	1	119	200.0	260.0	47	494.77502	1	61	200.0	280.0
23	617.32410	1	76	150.0	70.0	48	493.40991	1	87	200.0	310.0
24	606.90173	1	109	150.0	210.0	49	487.59515	1	98	200.0	350.0
25	608.20410	1	199	150.0	230.0	50	486.70520	1	171	150.0	270.0

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	592.8	432.8	267.5	140.0	90.4
350.0 /	667.9	487.6	299.4	155.6	99.9
340.0 /	600.6	429.9	257.6	129.9	81.7
330.0 /	810.5	603.8	379.9	203.3	132.8
320.0 /	718.7	531.9	332.1	176.3	114.7
310.0 /	675.5	493.4	304.0	158.0	101.6
300.0 /	710.5	510.8	308.0	156.7	99.4
290.0 /	461.0	330.4	197.9	99.9	62.8
280.0 /	1005.7	744.9	466.5	248.0	161.2
270.0 /	920.0	677.0	420.0	220.8	142.8
260.0 /	842.1	619.9	385.1	202.5	131.0
250.0 /	639.9	458.9	276.2	140.7	89.1
240.0 /	505.1	363.4	220.2	113.3	72.4
230.0 /	638.1	458.7	276.2	140.4	89.0
220.0 /	559.4	404.7	246.0	126.4	80.7
210.0 /	608.9	441.8	270.0	140.2	90.4
200.0 /	458.7	343.0	217.5	116.8	76.2
190.0 /	371.4	262.3	154.0	75.9	47.0
180.0 /	402.2	283.8	167.7	82.1	51.3
170.0 /	567.8	413.0	252.8	130.5	83.2
160.0 /	293.3	214.0	131.6	68.7	44.2
150.0 /	301.1	225.5	143.1	77.2	50.5
140.0 /	169.8	113.7	62.7	29.2	19.1
130.0 /	455.2	323.3	191.9	95.8	60.0
120.0 /	407.0	299.8	186.3	98.1	63.3
110.0 /	330.0	243.6	152.2	80.7	52.2
100.0 /	440.0	313.0	186.4	93.2	58.4
90.0 /	294.6	210.5	125.9	63.5	40.1
80.0 /	311.9	214.7	126.4	66.2	42.7
70.0 /	617.3	441.6	264.0	133.2	84.0
60.0 /	415.7	295.7	176.0	88.3	55.3
50.0 /	351.0	251.4	159.0	86.0	56.4
40.0 /	477.2	351.0	217.8	114.1	73.5
30.0 /	632.9	454.4	273.4	138.5	87.3
20.0 /	484.1	359.9	226.7	121.2	79.0
10.0 /	696.6	498.6	299.2	150.9	95.1

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	30.8	11.3	5.2
350.0 /	33.4	12.0	5.5
340.0 /	26.2	9.0	4.0
330.0 /	45.9	17.0	7.9
320.0 /	39.4	14.4	6.7
310.0 /	34.3	12.4	5.7
300.0 /	32.5	11.5	5.2
290.0 /	20.1	6.9	3.1
280.0 /	55.6	20.6	9.6
270.0 /	48.6	17.7	8.2
260.0 /	44.8	16.4	7.6
250.0 /	29.2	10.8	5.0
240.0 /	24.3	8.8	4.1
230.0 /	28.9	10.1	4.5
220.0 /	26.7	9.5	4.3
210.0 /	30.7	11.3	5.3
200.0 /	26.7	10.0	4.7
190.0 /	14.6	4.9	2.3
180.0 /	17.0	6.3	3.0
170.0 /	27.6	9.9	4.5
160.0 /	14.8	5.4	2.5
150.0 /	17.6	6.6	3.1
140.0 /	6.6	2.4	1.1
130.0 /	19.1	6.5	2.9
120.0 /	21.6	7.9	3.6
110.0 /	17.6	6.6	3.0
100.0 /	16.8	6.5	2.9
90.0 /	12.9	4.5	2.0
80.0 /	14.4	5.2	2.4
70.0 /	26.9	9.3	4.1
60.0 /	17.6	6.1	2.7
50.0 /	19.9	7.5	3.5
40.0 /	24.9	9.0	4.1
30.0 /	28.4	10.0	4.5
20.0 /	27.4	10.2	4.8
10.0 /	31.0	10.9	4.9

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	591.3	432.4	266.0	137.6	88.2
350.0 /	474.6	339.9	204.4	104.2	66.3
340.0 /	365.2	266.8	164.0	85.7	55.3
330.0 /	229.1	162.8	96.9	48.6	30.6
320.0 /	695.7	503.2	306.0	157.5	100.7
310.0 /	214.0	159.8	101.2	54.4	35.6
300.0 /	632.1	458.4	279.3	143.8	91.6
290.0 /	337.2	248.3	154.9	81.9	53.1
280.0 /	684.6	494.8	300.9	155.2	99.3
270.0 /	714.2	509.4	303.9	152.7	96.1
260.0 /	304.6	227.9	144.5	77.9	51.0
250.0 /	538.2	397.6	248.1	131.4	85.1
240.0 /	358.3	258.6	156.6	80.3	51.2
230.0 /	608.2	428.6	251.8	124.2	77.2
220.0 /	362.4	267.8	166.8	88.0	57.0
210.0 /	523.1	384.1	237.9	124.8	80.7
200.0 /	425.0	302.9	179.9	90.9	58.3
190.0 /	230.5	170.6	107.4	57.4	37.4
180.0 /	355.0	254.2	154.8	80.2	50.6
170.0 /	345.8	246.2	147.1	73.9	46.4
160.0 /	290.2	212.2	130.5	67.7	43.4
150.0 /	228.9	166.5	101.9	52.9	34.0
140.0 /	116.2	86.7	54.6	28.4	16.7
130.0 /	274.9	196.4	117.4	62.2	40.5
120.0 /	383.1	279.3	172.4	90.0	57.9
110.0 /	211.1	144.2	81.6	42.3	26.9
100.0 /	344.3	247.6	149.1	75.9	48.1
90.0 /	246.5	170.7	97.6	46.7	28.5
80.0 /	280.3	205.2	121.5	57.2	34.4
70.0 /	510.3	347.5	194.8	90.9	54.5
60.0 /	296.7	211.4	126.9	63.7	39.9
50.0 /	332.8	249.8	150.4	76.0	47.9
40.0 /	343.0	241.2	141.5	69.4	43.1
30.0 /	452.4	334.6	209.1	111.1	72.2
20.0 /	132.9	97.0	59.9	31.5	20.4
10.0 /	674.2	482.2	289.1	146.2	92.4

*** 1974 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	29.6	10.7	4.9
350.0 /	21.8	7.8	3.5
340.0 /	18.7	6.8	3.1
330.0 /	9.9	3.6	1.7
320.0 /	33.6	12.1	5.5
310.0 /	12.5	4.7	2.2
300.0 /	30.1	10.7	4.8
290.0 /	18.1	6.5	3.0
280.0 /	33.4	12.1	5.6
270.0 /	31.1	10.8	4.9
260.0 /	17.8	6.7	3.1
250.0 /	29.2	10.3	4.7
240.0 /	16.9	6.0	2.7
230.0 /	24.2	8.2	3.6
220.0 /	19.3	7.0	3.2
210.0 /	27.5	10.1	4.7
200.0 /	19.6	7.1	3.3
190.0 /	13.0	4.8	2.1
180.0 /	16.9	6.0	2.7
170.0 /	15.0	5.3	2.4
160.0 /	14.5	5.3	2.5
150.0 /	11.4	4.1	1.9
140.0 /	4.6	1.4	0.7
130.0 /	13.9	5.1	2.4
120.0 /	19.4	7.0	3.2
110.0 /	9.0	3.3	1.7
100.0 /	15.7	5.5	2.5
90.0 /	8.4	2.7	1.2
80.0 /	9.9	3.6	1.7
70.0 /	15.8	5.7	2.7
60.0 /	13.1	4.6	2.1
50.0 /	15.3	5.5	2.6
40.0 /	13.4	4.5	2.0
30.0 /	24.9	9.2	4.3
20.0 /	7.0	2.5	1.2
10.0 /	30.2	10.6	4.8

USER: A016 -AT

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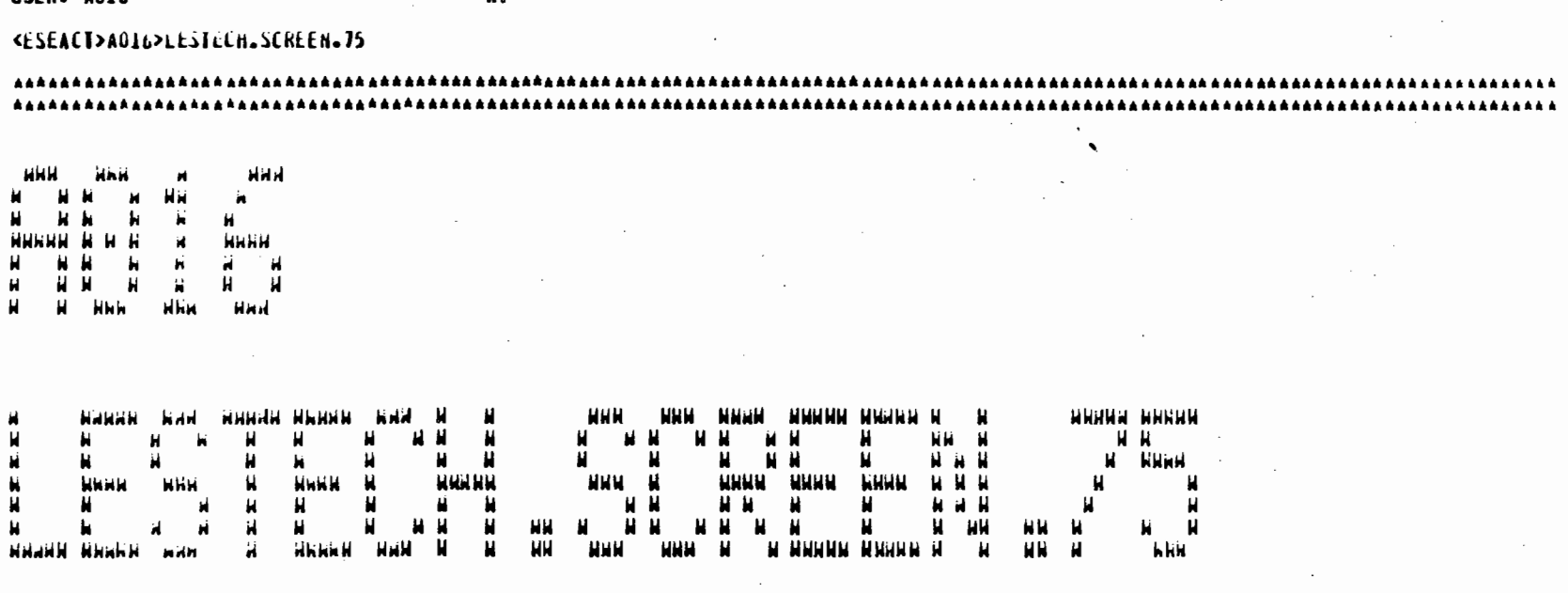

LABEL: PRT014 -FORM PR1

PATHNAME: <LSEAC1>A016>LESTECH.SCREEN.75
FILE LAST MODIFIED: 86-11-11.11:57:32.TUE

SPOOLED: 86-11-11.12:06:04.TUE [SPOOLER REV 19.4.5]
STARTED: 86-11-11.12:06:06.TUE ON: PR1 BY: PR1

*** 1975 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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) =	0
4-HOUR (YES=1,NO=0)	ISW(10) =	0
6-HOUR (YES=1,NO=0)	ISW(11) =	0
8-HOUR (YES=1,NO=0)	ISW(12) =	0
12-HOUR (YES=1,NO=0)	ISW(13) =	0
24-HOUR (YES=1,NO=0)	ISW(14) =	1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) =	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) =	1
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 =	8
NUMBER OF Y (THETA) GRID VALUES	NYPNTS =	36
NUMBER OF DISCRETE RECEPTORS	NXNYPT =	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 = 7.10 METERS		
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET =	9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION DECAY = 0.000000E+00		
SURFACE STATION NO.	ISS =	12815
YEAR OF SURFACE DATA	ISY =	75
UPPER AIR STATION NO.	IUS =	12842
YEAR OF UPPER AIR DATA	IUY =	75
ALLOCATED DATA STORAGE	LIMIT =	43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT =	2979 WORDS

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

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1111111111 1111111111 1111111111 1111111111 1111111111
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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

*** 1975 METEOROLOGY - LSTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

150., 200., 300., 500., 700., 1500., 3000., 5000.,

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

(DEGREES)

10.,	20.,	30.,	40.,	50.,	60.,	70.,	80.,	90.,	100.,
110.,	120.,	130.,	140.,	150.,	160.,	170.,	180.,	190.,	200.,
210.,	220.,	230.,	240.,	250.,	260.,	270.,	280.,	290.,	300.,
310.,	320.,	330.,	340.,	350.,	360.,				

*** 1975 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

SOURCE # 1---BELT-TO-HOPPER, VOLUME SOURCE, 5X5X19.4
SOURCE # 2---HOPPER-TO-RAILCAR, VOLUME SOURCE,3X12X5.

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	ACTIVE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (G/S) TYPE=2 (G/S) APER 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	1	0	10	0.010	0.	0.	0.0	9.68	9.0	1.20	0.00	0.0	0.0	0.0
2	1	0	10	0.160	0.	0.	0.0	2.74	2.6	1.40	0.00	0.0	0.0	0.0

*** 1975 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

*** SOURCE PARTICULATE DATA ***

*** SOURCE NUMBER = 1 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.60000,

*** SOURCE NUMBER = 2 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.60000,

N-DAY
365 DAYS
SGROUP# 1
YEAR 1975
*** 1975 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 32.3 AND OCCURRED AT (150.0, 230.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0	1500.0	3000.0	5000.0
360.0 /	21.1	14.7	8.6	4.2	2.6	0.8	0.3	0.1
350.0 /	17.6	12.1	7.0	3.4	2.1	0.6	0.2	0.1
340.0 /	20.7	14.6	8.6	4.3	2.6	0.8	0.3	0.1
330.0 /	16.2	11.2	6.5	3.1	1.9	0.6	0.2	0.1
320.0 /	20.3	14.2	8.3	4.1	2.5	0.8	0.3	0.1
310.0 /	21.6	15.1	8.9	4.4	2.7	0.9	0.3	0.1
300.0 /	29.1	20.4	12.1	6.0	3.7	1.2	0.4	0.2
290.0 /	18.7	12.9	7.5	3.6	2.2	0.7	0.2	0.1
280.0 /	19.8	13.7	8.0	3.9	2.4	0.8	0.3	0.1
270.0 /	22.8	15.9	9.4	4.6	2.8	0.9	0.3	0.1
260.0 /	17.6	12.1	7.0	3.4	2.1	0.7	0.2	0.1
250.0 /	24.6	17.2	10.1	5.0	3.1	1.0	0.3	0.2
240.0 /	26.4	18.3	10.7	5.2	3.2	1.0	0.4	0.2
230.0 /	32.3	22.6	13.4	6.6	4.1	1.3	0.5	0.2
220.0 /	27.7	19.3	11.3	5.5	3.4	1.1	0.4	0.2
210.0 /	26.7	18.5	10.8	5.3	3.3	1.0	0.4	0.2
200.0 /	31.7	22.2	13.1	6.5	4.0	1.3	0.5	0.2
190.0 /	19.0	13.0	7.5	3.6	2.2	0.7	0.2	0.1
180.0 /	22.6	15.8	9.4	4.6	2.9	0.9	0.3	0.1
170.0 /	15.1	10.4	6.1	3.0	1.8	0.6	0.2	0.1
160.0 /	13.2	9.2	5.3	2.6	1.6	0.5	0.2	0.1
150.0 /	8.3	5.7	3.2	1.5	0.9	0.3	0.1	0.0
140.0 /	6.9	4.7	2.6	1.2	0.7	0.2	0.1	0.0
130.0 /	10.2	7.0	4.0	1.9	1.2	0.4	0.1	0.1
120.0 /	12.9	8.9	5.1	2.5	1.5	0.5	0.2	0.1
110.0 /	15.3	10.7	6.3	3.1	1.9	0.6	0.2	0.1
100.0 /	9.9	6.8	4.0	1.9	1.2	0.4	0.1	0.1
90.0 /	17.5	12.4	7.4	3.7	2.3	0.8	0.3	0.1
80.0 /	10.5	7.2	4.2	2.0	1.3	0.4	0.1	0.1
70.0 /	14.6	10.4	6.2	3.1	1.9	0.6	0.2	0.1
60.0 /	11.9	8.2	4.7	2.3	1.4	0.4	0.2	0.1
50.0 /	9.7	6.6	3.8	1.8	1.1	0.3	0.1	0.1
40.0 /	9.6	6.7	3.8	1.8	1.1	0.3	0.1	0.1
30.0 /	10.5	7.2	4.1	1.9	1.2	0.4	0.1	0.1
20.0 /	13.4	9.2	5.4	2.6	1.6	0.5	0.2	0.1
10.0 /	15.1	10.3	5.9	2.8	1.7	0.5	0.2	0.1

HIGH
24-HR
SGROUP# 1
YEAR 1975
*** 1975 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 693.1 AND OCCURRED AT (150.0, 70.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	309.0 (160, 1)	221.9 (160, 1)	133.8 (160, 1)	69.6 (119, 1)	45.2 (119, 1)
350.0 /	664.5 (219, 1)	484.7 (219, 1)	297.5 (219, 1)	153.8 (219, 1)	98.2 (219, 1)
340.0 /	343.3 (168, 1)	250.2 (168, 1)	156.7 (185, 1)	84.3 (185, 1)	55.1 (185, 1)
330.0 /	403.6 (146, 1)	292.1 (146, 1)	177.8 (146, 1)	90.8 (146, 1)	57.6 (146, 1)
320.0 /	640.2 (350, 1)	463.6 (350, 1)	281.8 (350, 1)	145.0 (350, 1)	92.4 (350, 1)
310.0 /	587.6 (156, 1)	425.8 (156, 1)	259.0 (156, 1)	133.1 (156, 1)	84.9 (156, 1)
300.0 /	557.1 (31, 1)	395.4 (31, 1)	234.3 (31, 1)	117.0 (31, 1)	73.4 (31, 1)
290.0 /	427.3 (249, 1)	314.1 (249, 1)	194.9 (249, 1)	102.8 (249, 1)	66.5 (249, 1)
280.0 /	588.6 (144, 1)	423.3 (144, 1)	255.4 (144, 1)	130.3 (144, 1)	82.7 (144, 1)
270.0 /	396.0 (91, 1)	291.6 (91, 1)	181.0 (91, 1)	95.4 (91, 1)	61.8 (91, 1)
260.0 /	200.2 (218, 1)	137.1 (218, 1)	78.2 (340, 1)	40.0 (340, 1)	25.4 (340, 1)
250.0 /	611.6 (237, 1)	440.3 (237, 1)	265.8 (237, 1)	135.4 (237, 1)	85.8 (237, 1)
240.0 /	277.0 (264, 1)	202.6 (264, 1)	126.0 (279, 1)	66.3 (279, 1)	42.7 (279, 1)
230.0 /	364.1 (201, 1)	268.9 (201, 1)	168.1 (201, 1)	89.5 (201, 1)	58.2 (201, 1)
220.0 /	448.7 (247, 1)	321.1 (247, 1)	191.8 (247, 1)	96.7 (247, 1)	60.9 (247, 1)
210.0 /	394.7 (341, 1)	283.0 (341, 1)	170.3 (341, 1)	87.1 (341, 1)	55.5 (341, 1)
200.0 /	565.9 (107, 1)	417.2 (107, 1)	259.4 (107, 1)	137.0 (107, 1)	88.7 (107, 1)
190.0 /	493.4 (132, 1)	358.5 (132, 1)	218.6 (132, 1)	112.9 (132, 1)	72.1 (132, 1)
180.0 /	203.1 (114, 1)	146.6 (114, 1)	91.2 (338, 1)	48.6 (338, 1)	31.2 (338, 1)
170.0 /	254.3 (357, 1)	183.4 (357, 1)	111.2 (357, 1)	56.8 (357, 1)	35.9 (357, 1)
160.0 /	440.4 (329, 1)	321.3 (329, 1)	197.6 (329, 1)	103.4 (329, 1)	66.7 (329, 1)
150.0 /	156.4 (302, 1)	113.0 (302, 1)	69.1 (302, 1)	35.6 (302, 1)	22.5 (302, 1)
140.0 /	227.8 (33, 1)	159.0 (33, 1)	92.3 (33, 1)	45.0 (33, 1)	27.7 (33, 1)
130.0 /	200.1 (299, 1)	148.4 (299, 1)	93.4 (299, 1)	49.9 (299, 1)	32.4 (299, 1)
120.0 /	464.3 (153, 1)	337.4 (153, 1)	206.6 (153, 1)	106.6 (153, 1)	68.3 (153, 1)
110.0 /	327.0 (163, 1)	228.9 (163, 1)	133.6 (163, 1)	65.6 (164, 1)	40.8 (164, 1)
100.0 /	527.0 (80, 1)	380.2 (80, 1)	230.0 (80, 1)	117.6 (80, 1)	74.5 (80, 1)
90.0 /	585.3 (171, 1)	429.4 (171, 1)	265.0 (171, 1)	138.5 (171, 1)	89.2 (171, 1)
80.0 /	579.6 (342, 1)	424.3 (342, 1)	262.1 (342, 1)	137.1 (342, 1)	88.3 (342, 1)
70.0 /	693.1 (215, 1)	515.8 (215, 1)	324.2 (215, 1)	173.3 (215, 1)	113.2 (215, 1)
60.0 /	231.9 (216, 1)	165.0 (216, 1)	98.0 (216, 1)	49.2 (216, 1)	31.0 (216, 1)
50.0 /	291.8 (331, 1)	212.2 (331, 1)	130.1 (331, 1)	67.5 (331, 1)	43.3 (331, 1)
40.0 /	184.3 (342, 1)	128.2 (342, 1)	74.3 (342, 1)	40.2 (231, 1)	26.3 (231, 1)
30.0 /	397.3 (259, 1)	285.5 (259, 1)	171.4 (259, 1)	86.6 (259, 1)	54.5 (259, 1)
20.0 /	315.2 (190, 1)	231.8 (190, 1)	143.9 (190, 1)	75.5 (190, 1)	48.6 (190, 1)
10.0 /	404.3 (202, 1)	282.4 (202, 1)	163.4 (202, 1)	79.3 (202, 1)	48.8 (202, 1)

HIGH
24-HR
SGROUP# 1
YEAR 1975
*** 1975 METEOROLOGY - LSTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 693.1 AND OCCURRED AT (150.0, 70.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	15.7 (119, 1)	5.9 (119, 1)	2.8 (119, 1)
350.0 /	32.8 (219, 1)	11.8 (219, 1)	5.4 (219, 1)
340.0 /	19.3 (185, 1)	7.2 (185, 1)	3.4 (185, 1)
330.0 /	19.0 (146, 1)	6.7 (146, 1)	3.1 (146, 1)
320.0 /	30.5 (350, 1)	10.8 (350, 1)	4.9 (350, 1)
310.0 /	27.9 (156, 1)	10.1 (261, 1)	4.7 (261, 1)
300.0 /	23.3 (31, 1)	7.9 (31, 1)	3.5 (31, 1)
290.0 /	22.7 (249, 1)	8.3 (249, 1)	3.9 (249, 1)
280.0 /	27.0 (144, 1)	9.6 (144, 1)	4.3 (144, 1)
270.0 /	21.0 (91, 1)	7.7 (91, 1)	3.5 (91, 1)
260.0 /	8.7 (301, 1)	3.2 (301, 1)	1.5 (301, 1)
250.0 /	27.9 (237, 1)	9.8 (237, 1)	4.4 (237, 1)
240.0 /	14.6 (279, 1)	5.4 (279, 1)	2.5 (279, 1)
230.0 /	20.0 (201, 1)	7.5 (201, 1)	3.5 (201, 1)
220.0 /	19.5 (247, 1)	6.7 (247, 1)	3.0 (247, 1)
210.0 /	18.4 (341, 1)	6.6 (341, 1)	3.0 (341, 1)
200.0 /	30.3 (107, 1)	11.1 (107, 1)	5.1 (107, 1)
190.0 /	23.8 (132, 1)	8.5 (132, 1)	3.8 (132, 1)
180.0 /	10.6 (338, 1)	4.0 (338, 1)	1.9 (294, 1)
170.0 /	11.7 (357, 1)	4.2 (338, 1)	2.0 (338, 1)
160.0 /	22.7 (329, 1)	8.3 (329, 1)	3.8 (329, 1)
150.0 /	7.4 (302, 1)	2.7 (302, 1)	1.2 (302, 1)
140.0 /	8.6 (33, 1)	2.9 (33, 1)	1.3 (33, 1)
130.0 /	11.2 (299, 1)	4.2 (299, 1)	2.0 (299, 1)
120.0 /	22.7 (153, 1)	8.1 (153, 1)	3.7 (153, 1)
110.0 /	13.1 (85, 1)	4.7 (85, 1)	2.2 (166, 1)
100.0 /	24.3 (80, 1)	8.6 (80, 1)	3.8 (80, 1)
90.0 /	29.9 (171, 1)	10.8 (171, 1)	4.9 (171, 1)
80.0 /	29.9 (342, 1)	10.9 (342, 1)	5.0 (342, 1)
70.0 /	39.2 (215, 1)	14.5 (215, 1)	6.8 (215, 1)
60.0 /	9.9 (216, 1)	3.4 (216, 1)	1.5 (216, 1)
50.0 /	14.5 (331, 1)	5.2 (331, 1)	2.4 (331, 1)
40.0 /	9.3 (231, 1)	3.6 (231, 1)	1.7 (231, 1)
30.0 /	17.4 (259, 1)	6.0 (259, 1)	2.6 (259, 1)
20.0 /	16.4 (190, 1)	6.0 (190, 1)	2.7 (190, 1)
10.0 /	14.6 (202, 1)	4.8 (202, 1)	2.1 (207, 1)

2ND HIGH
24-HR
SGROUP# 1
YEAR 1975
*** 1975 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 515.5 AND OCCURRED AT (150.0, 90.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	292.4 (350, 1)	206.6 (119, 1)	130.3 (119, 1)	68.0 (160, 1)	43.1 (160, 1)
350.0 /	268.7 (230, 1)	194.0 (230, 1)	117.5 (230, 1)	60.2 (230, 1)	38.3 (230, 1)
340.0 /	330.4 (185, 1)	247.3 (185, 1)	153.3 (168, 1)	79.0 (168, 1)	50.4 (168, 1)
330.0 /	267.6 (224, 1)	190.2 (224, 1)	113.4 (224, 1)	56.5 (224, 1)	35.3 (224, 1)
320.0 /	358.9 (145, 1)	256.7 (145, 1)	154.0 (145, 1)	77.7 (145, 1)	49.1 (145, 1)
310.0 /	510.8 (261, 1)	377.1 (261, 1)	234.9 (261, 1)	124.2 (261, 1)	80.4 (261, 1)
300.0 /	460.4 (223, 1)	329.7 (223, 1)	197.8 (223, 1)	99.4 (223, 1)	62.4 (223, 1)
290.0 /	421.3 (343, 1)	303.1 (343, 1)	182.2 (343, 1)	92.5 (343, 1)	58.5 (343, 1)
280.0 /	268.9 (133, 1)	207.2 (133, 1)	124.5 (133, 1)	63.0 (133, 1)	39.7 (133, 1)
270.0 /	323.1 (349, 1)	233.6 (349, 1)	142.2 (349, 1)	73.6 (349, 1)	47.3 (349, 1)
260.0 /	177.5 (340, 1)	127.9 (340, 1)	77.9 (218, 1)	38.7 (301, 1)	25.2 (301, 1)
250.0 /	513.0 (143, 1)	374.7 (143, 1)	230.1 (143, 1)	120.0 (143, 1)	77.2 (143, 1)
240.0 /	275.1 (279, 1)	202.2 (279, 1)	124.7 (264, 1)	65.0 (264, 1)	41.7 (264, 1)
230.0 /	296.0 (7, 1)	217.7 (7, 1)	134.6 (7, 1)	70.4 (7, 1)	45.0 (7, 1)
220.0 /	253.5 (232, 1)	180.6 (232, 1)	108.0 (232, 1)	54.2 (232, 1)	34.0 (232, 1)
210.0 /	255.6 (295, 1)	180.7 (239, 1)	112.4 (239, 1)	59.3 (239, 1)	38.0 (239, 1)
200.0 /	428.0 (1, 1)	298.9 (1, 1)	177.3 (300, 1)	92.7 (300, 1)	59.5 (300, 1)
190.0 /	192.2 (254, 1)	140.1 (254, 1)	86.1 (254, 1)	44.8 (254, 1)	28.7 (254, 1)
180.0 /	197.1 (338, 1)	145.3 (338, 1)	89.8 (283, 1)	47.5 (283, 1)	30.7 (283, 1)
170.0 /	199.6 (338, 1)	147.1 (338, 1)	92.7 (338, 1)	49.6 (338, 1)	32.1 (338, 1)
160.0 /	173.3 (273, 1)	121.8 (273, 1)	71.7 (273, 1)	35.0 (345, 1)	22.9 (345, 1)
150.0 /	127.2 (296, 1)	88.9 (296, 1)	52.0 (296, 1)	25.1 (296, 1)	15.3 (296, 1)
140.0 /	81.4 (297, 1)	56.3 (297, 1)	32.9 (297, 1)	15.9 (297, 1)	9.8 (297, 1)
130.0 /	174.3 (105, 1)	126.7 (105, 1)	77.7 (105, 1)	40.2 (105, 1)	25.7 (105, 1)
120.0 /	350.1 (250, 1)	247.2 (250, 1)	145.0 (250, 1)	71.5 (250, 1)	44.4 (250, 1)
110.0 /	305.7 (164, 1)	218.2 (164, 1)	130.7 (164, 1)	65.0 (163, 1)	39.9 (163, 1)
100.0 /	223.1 (164, 1)	163.6 (164, 1)	102.5 (164, 1)	54.2 (164, 1)	34.8 (164, 1)
90.0 /	515.5 (120, 1)	375.9 (120, 1)	229.9 (120, 1)	119.0 (120, 1)	76.1 (120, 1)
80.0 /	287.0 (205, 1)	155.5 (205, 1)	99.1 (205, 1)	53.6 (205, 1)	35.2 (205, 1)
70.0 /	373.3 (255, 1)	276.3 (255, 1)	172.7 (255, 1)	91.6 (255, 1)	59.4 (255, 1)
60.0 /	134.8 (215, 1)	97.6 (140, 1)	60.2 (140, 1)	31.6 (140, 1)	20.4 (140, 1)
50.0 /	162.0 (155, 1)	119.7 (155, 1)	75.6 (155, 1)	40.2 (155, 1)	26.0 (155, 1)
40.0 /	153.0 (231, 1)	114.9 (231, 1)	73.9 (231, 1)	35.9 (342, 1)	22.8 (342, 1)
30.0 /	371.7 (256, 1)	262.5 (256, 1)	154.6 (256, 1)	76.6 (256, 1)	47.7 (256, 1)
20.0 /	250.2 (70, 1)	186.8 (70, 1)	118.3 (70, 1)	63.5 (70, 1)	41.3 (70, 1)
10.0 /	226.2 (217, 1)	160.9 (336, 1)	97.5 (336, 1)	49.9 (336, 1)	32.4 (207, 1)

2ND HIGH
24-HR
SGROUP# 1
YEAR 1975
*** 1975 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 515.5 AND OCCURRED AT (150.0, 90.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	14.1 (160, 1)	5.0 (160, 1)	2.3 (160, 1)
350.0 /	12.6 (230, 1)	4.4 (230, 1)	2.0 (230, 1)
340.0 /	16.9 (361, 1)	6.2 (361, 1)	2.9 (361, 1)
330.0 /	11.4 (224, 1)	4.0 (224, 1)	1.8 (224, 1)
320.0 /	16.0 (145, 1)	5.6 (145, 1)	2.5 (145, 1)
310.0 /	27.5 (261, 1)	9.8 (156, 1)	4.4 (156, 1)
300.0 /	19.9 (223, 1)	6.9 (223, 1)	3.0 (223, 1)
290.0 /	18.9 (343, 1)	6.5 (343, 1)	2.9 (343, 1)
280.0 /	12.9 (133, 1)	4.7 (69, 1)	2.2 (69, 1)
270.0 /	15.9 (349, 1)	5.8 (349, 1)	2.7 (349, 1)
260.0 /	8.5 (340, 1)	3.1 (340, 1)	1.4 (340, 1)
250.0 /	25.9 (143, 1)	9.3 (143, 1)	4.3 (143, 1)
240.0 /	13.9 (264, 1)	5.0 (264, 1)	2.3 (264, 1)
230.0 /	15.0 (7, 1)	5.5 (348, 1)	2.7 (348, 1)
220.0 /	11.0 (232, 1)	4.0 (265, 1)	1.8 (265, 1)
210.0 /	12.9 (239, 1)	4.8 (239, 1)	2.3 (239, 1)
200.0 /	19.9 (300, 1)	7.2 (300, 1)	3.3 (300, 1)
190.0 /	9.6 (254, 1)	3.5 (347, 1)	1.6 (347, 1)
180.0 /	10.5 (283, 1)	3.9 (294, 1)	1.9 (338, 1)
170.0 /	11.0 (338, 1)	4.1 (357, 1)	1.9 (357, 1)
160.0 /	8.0 (345, 1)	3.0 (345, 1)	1.4 (345, 1)
150.0 /	4.7 (296, 1)	1.6 (171, 1)	0.8 (171, 1)
140.0 /	3.1 (297, 1)	1.1 (358, 1)	0.5 (358, 1)
130.0 /	8.6 (105, 1)	3.1 (105, 1)	1.4 (105, 1)
120.0 /	13.7 (250, 1)	4.5 (250, 1)	1.9 (250, 1)
110.0 /	12.9 (164, 1)	4.7 (166, 1)	2.2 (85, 1)
100.0 /	11.9 (164, 1)	4.5 (164, 1)	2.1 (164, 1)
90.0 /	25.1 (120, 1)	8.9 (120, 1)	4.0 (120, 1)
80.0 /	12.4 (205, 1)	4.7 (205, 1)	2.2 (205, 1)
70.0 /	20.3 (255, 1)	7.5 (255, 1)	3.5 (255, 1)
60.0 /	6.9 (140, 1)	2.5 (140, 1)	1.2 (165, 1)
50.0 /	8.9 (155, 1)	3.4 (155, 1)	1.6 (155, 1)
40.0 /	7.0 (157, 1)	2.7 (157, 1)	1.3 (157, 1)
30.0 /	15.2 (256, 1)	5.2 (256, 1)	2.3 (256, 1)
20.0 /	14.4 (70, 1)	5.4 (70, 1)	2.5 (70, 1)
10.0 /	11.4 (207, 1)	4.3 (207, 1)	2.0 (202, 1)

MAX 50
24-HR
SGROUP# 1
YEAR 1975
*** 1975 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

* 50 MAXIMUM 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM ALL SOURCES *

RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)	RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)
1	693.14050	1	215	150.0	70.0	26	428.83295	1	1	150.0	200.0
2	664.49475	1	219	150.0	350.0	27	427.29455	1	249	150.0	290.0
3	640.17370	1	350	150.0	320.0	28	425.80823	1	156	200.0	310.0
4	611.60290	1	237	150.0	250.0	29	424.34741	1	342	200.0	80.0
5	588.66376	1	144	150.0	280.0	30	423.25018	1	144	200.0	280.0
6	587.56362	1	156	150.0	310.0	31	421.32098	1	343	150.0	290.0
7	585.28113	1	171	150.0	90.0	32	417.20361	1	107	200.0	200.0
8	579.64331	1	342	150.0	80.0	33	404.32831	1	202	150.0	10.0
9	565.92078	1	107	150.0	200.0	34	403.58337	1	146	150.0	330.0
10	557.05066	1	31	150.0	300.0	35	400.88013	1	332	150.0	300.0
11	526.99768	1	80	150.0	100.0	36	397.33874	1	259	150.0	30.0
12	515.83769	1	215	200.0	70.0	37	395.98071	1	91	150.0	270.0
13	515.54919	1	120	150.0	90.0	38	395.35095	1	31	200.0	300.0
14	514.85510	1	180	150.0	90.0	39	394.70801	1	341	150.0	210.0
15	513.61477	1	143	150.0	250.0	40	393.10150	1	300	150.0	200.0
16	510.64086	1	261	150.0	310.0	41	382.21966	1	312	150.0	290.0
17	493.38568	1	132	150.0	190.0	42	380.23114	1	80	200.0	100.0
18	484.71210	1	219	200.0	350.0	43	377.08264	1	261	200.0	310.0
19	464.26345	1	153	150.0	120.0	44	375.91296	1	120	200.0	90.0
20	463.62396	1	350	200.0	320.0	45	374.67126	1	143	200.0	250.0
21	460.42273	1	223	150.0	300.0	46	373.29217	1	255	150.0	70.0
22	448.73547	1	247	150.0	220.0	47	372.34857	1	180	200.0	90.0
23	440.40741	1	329	150.0	160.0	48	371.71307	1	256	150.0	30.0
24	440.32066	1	237	200.0	250.0	49	364.14380	1	201	150.0	230.0
25	429.38379	1	171	200.0	90.0	50	358.92328	1	145	150.0	320.0

*** 1975 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	309.0	221.9	133.8	69.6	45.2
350.0 /	664.5	484.7	297.5	153.8	98.2
340.0 /	343.3	250.2	156.7	84.3	55.1
330.0 /	403.6	292.1	177.8	90.5	57.6
320.0 /	640.2	463.6	281.8	145.0	92.4
310.0 /	587.6	425.8	259.0	133.1	84.9
300.0 /	557.1	395.4	234.3	117.0	73.4
290.0 /	427.3	314.1	194.9	102.8	66.5
280.0 /	586.6	423.3	255.4	130.3	82.7
270.0 /	396.0	291.6	181.0	95.4	61.8
260.0 /	200.2	137.1	78.2	40.0	25.4
250.0 /	611.6	440.3	265.8	135.4	85.8
240.0 /	277.0	202.6	126.0	66.3	42.7
230.0 /	364.1	268.9	168.1	89.5	58.2
220.0 /	448.7	321.1	191.8	96.7	60.9
210.0 /	394.7	283.0	170.3	87.1	55.5
200.0 /	565.9	417.2	259.4	137.0	88.7
190.0 /	493.4	358.5	218.6	112.9	72.1
180.0 /	203.1	146.6	91.2	48.6	31.2
170.0 /	254.3	183.4	111.2	56.8	35.9
160.0 /	440.4	321.3	197.6	103.4	66.7
150.0 /	156.4	113.0	69.1	35.6	22.5
140.0 /	227.8	159.0	92.3	45.0	27.7
130.0 /	200.1	148.4	93.4	49.9	32.4
120.0 /	464.3	337.4	206.6	106.6	68.3
110.0 /	327.0	228.9	133.6	65.6	40.8
100.0 /	527.0	380.2	230.0	117.6	74.5
90.0 /	585.3	429.4	265.0	138.5	89.2
80.0 /	579.6	424.3	262.1	137.1	88.3
70.0 /	693.1	515.8	324.2	173.3	113.2
60.0 /	231.9	165.0	98.0	49.2	31.0
50.0 /	291.8	212.2	130.1	67.5	43.3
40.0 /	184.3	128.2	74.3	40.2	26.3
30.0 /	397.3	285.5	171.4	86.6	54.5
20.0 /	315.2	231.8	143.9	75.5	48.6
10.0 /	404.3	282.4	163.4	79.3	48.8

*** 1975 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	15.7	5.9	2.8
350.0 /	32.8	11.8	5.4
340.0 /	19.3	7.2	3.4
330.0 /	19.0	6.7	3.1
320.0 /	30.5	10.8	4.9
310.0 /	27.9	10.1	4.7
300.0 /	23.3	7.9	3.5
290.0 /	22.7	8.3	3.9
280.0 /	27.0	9.6	4.3
270.0 /	21.0	7.7	3.5
260.0 /	8.7	3.2	1.5
250.0 /	27.9	9.8	4.4
240.0 /	14.6	5.4	2.5
230.0 /	20.0	7.5	3.5
220.0 /	19.5	6.7	3.0
210.0 /	18.4	6.6	3.0
200.0 /	30.3	11.1	5.1
190.0 /	23.8	8.5	3.8
180.0 /	10.6	4.0	1.9
170.0 /	11.7	4.2	2.0
160.0 /	22.7	8.3	3.8
150.0 /	7.4	2.7	1.2
140.0 /	8.6	2.9	1.3
130.0 /	11.2	4.2	2.0
120.0 /	22.7	8.1	3.7
110.0 /	13.1	4.7	2.2
100.0 /	24.3	8.6	3.8
90.0 /	29.9	10.8	4.9
80.0 /	29.9	10.9	5.0
70.0 /	39.2	14.5	6.8
60.0 /	9.9	3.4	1.5
50.0 /	14.5	5.2	2.4
40.0 /	9.3	3.6	1.7
30.0 /	17.4	6.0	2.6
20.0 /	16.4	6.0	2.7
10.0 /	14.8	4.8	2.1

*** 1975 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	292.4	206.6	130.3	68.0	43.1
350.0 /	268.7	194.0	117.5	60.2	38.3
340.0 /	330.4	247.3	153.3	79.0	50.4
330.0 /	267.6	190.2	113.4	56.5	35.3
320.0 /	358.9	256.7	154.0	77.7	49.1
310.0 /	510.8	377.1	234.9	124.2	80.4
300.0 /	460.4	329.7	197.8	99.4	62.4
290.0 /	421.3	303.1	182.2	92.5	58.5
280.0 /	286.9	207.2	124.5	63.0	39.7
270.0 /	323.1	233.6	142.2	73.6	47.3
260.0 /	177.5	127.9	77.9	38.7	25.2
250.0 /	513.0	374.7	230.1	120.0	77.2
240.0 /	275.1	202.2	124.7	65.0	41.7
230.0 /	298.0	217.7	134.6	70.4	45.0
220.0 /	253.5	180.6	108.0	54.2	34.0
210.0 /	255.6	180.7	112.4	59.3	38.0
200.0 /	428.8	298.9	177.3	92.7	59.5
190.0 /	192.2	140.1	86.1	44.8	28.7
180.0 /	197.1	145.3	89.8	47.5	30.7
170.0 /	199.6	147.1	92.7	49.6	32.1
160.0 /	173.3	121.8	71.7	35.0	22.9
150.0 /	127.2	88.9	52.0	25.1	15.3
140.0 /	81.4	56.3	32.9	15.9	9.6
130.0 /	174.3	126.7	77.7	40.2	25.7
120.0 /	350.1	247.2	145.0	71.5	44.4
110.0 /	305.7	218.2	130.7	65.0	39.9
100.0 /	223.1	163.6	102.5	54.2	34.8
90.0 /	515.5	375.9	229.9	119.0	76.1
80.0 /	207.0	155.5	99.1	53.6	35.2
70.0 /	373.3	276.3	172.7	91.6	59.4
60.0 /	134.8	97.6	60.2	31.6	20.4
50.0 /	162.0	119.7	75.6	40.2	26.0
40.0 /	153.0	114.9	73.9	35.9	22.0
30.0 /	371.7	262.5	154.6	76.6	47.7
20.0 /	250.2	186.8	118.3	63.5	41.3
10.0 /	226.2	160.9	97.5	49.9	32.4

*** 1975 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	14.1	5.0	2.3
350.0 /	12.6	4.4	2.0
340.0 /	16.9	6.2	2.9
330.0 /	11.4	4.0	1.8
320.0 /	16.0	5.6	2.5
310.0 /	27.5	9.8	4.4
300.0 /	19.9	6.9	3.0
290.0 /	18.9	6.5	2.9
280.0 /	12.9	4.7	2.2
270.0 /	15.9	5.8	2.7
260.0 /	8.5	3.1	1.4
250.0 /	25.9	9.3	4.3
240.0 /	13.9	5.0	2.3
230.0 /	15.0	5.5	2.7
220.0 /	11.0	4.0	1.8
210.0 /	12.9	4.8	2.3
200.0 /	19.9	7.2	3.3
190.0 /	9.6	3.5	1.6
180.0 /	10.5	3.9	1.9
170.0 /	11.0	4.1	1.9
160.0 /	8.0	3.0	1.4
150.0 /	4.7	1.8	0.8
140.0 /	3.1	1.1	0.5
130.0 /	8.6	3.1	1.4
120.0 /	13.7	4.5	1.9
110.0 /	12.9	4.7	2.2
100.0 /	11.9	4.5	2.1
90.0 /	25.1	8.9	4.0
80.0 /	12.4	4.7	2.2
70.0 /	20.3	7.5	3.5
60.0 /	6.9	2.5	1.2
50.0 /	8.9	3.4	1.6
40.0 /	7.0	2.7	1.3
30.0 /	15.2	5.2	2.3
20.0 /	14.4	5.4	2.5
10.0 /	11.4	4.3	2.0

USER: A016 -AT

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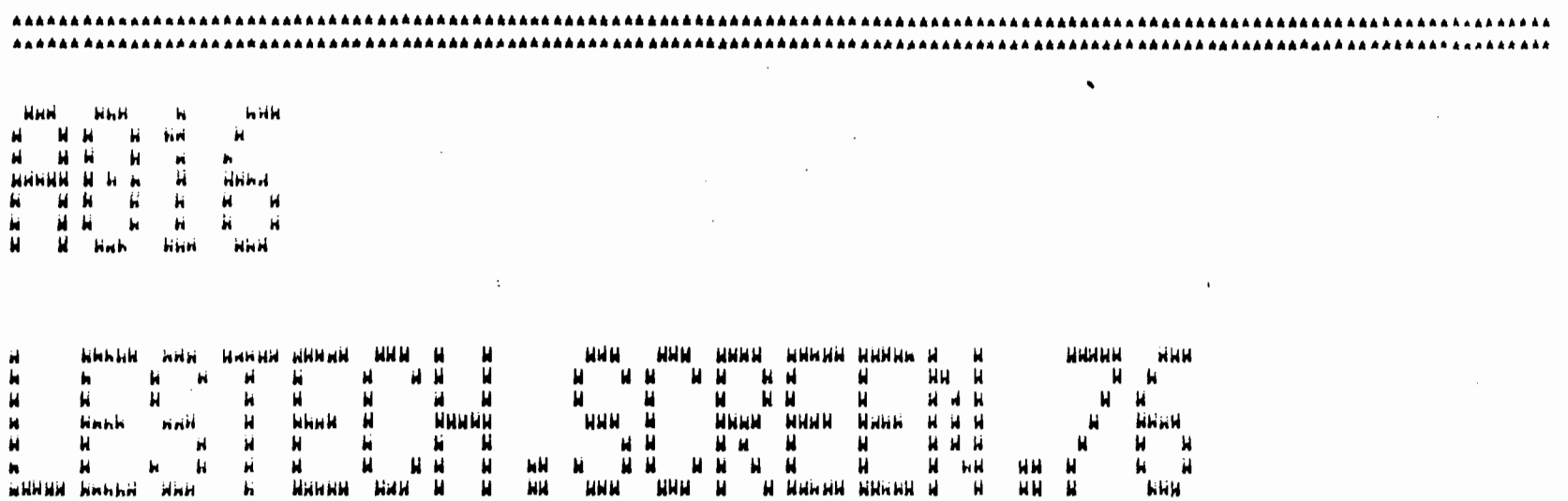

LABEL: PRTG16 -FORM PR1

PATHNAME: <ESEACT>A016>LESTECH.SCREEN.76
FILE LAST MODIFIED: 86-11-11.12:07:04.TUE

SPOOLED: 86-11-11.12:06:20.TUE [SPOOLER REV 19.4.5]
STARTED: 86-11-11.12:13:08.TUE ON: PR1 BY: PR1

*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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) =	0
4-HOUR (YES=1,NO=0)	ISW(10) =	0
6-HOUR (YES=1,NO=0)	ISW(11) =	0
8-HOUR (YES=1,NO=0)	ISW(12) =	0
12-HOUR (YES=1,NO=0)	ISW(13) =	0
24-HOUR (YES=1,NO=0)	ISW(14) =	1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) =	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) =	1
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 =	8
NUMBER OF Y (THETA) GRID VALUES	NYPNTS =	36
NUMBER OF DISCRETE RECEPTORS	NXNYPT =	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 = 7.10 METERS		
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET =	9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION DECAY = 0.000000E+00		
SURFACE STATION NO.	ISS =	12815
YEAR OF SURFACE DATA	ISY =	76
UPPER AIR STATION NO.	IUS =	12842
YEAR OF UPPER AIR DATA	IUY =	76
ALLOCATED DATA STORAGE	LIMIT =	43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MINIT =	2979 WORDS

*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

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1111111111 1111111111 1111111111 1111111111 1111111111
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1111111111 111111
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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

*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

150., 200., 300., 500., 700., 1500., 3000., 5000.,

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

(DEGREES)

10., 20., 30., 40., 50., 60., 70., 80., 90., 100.,
110., 120., 130., 140., 150., 160., 170., 180., 190., 200.,
210., 220., 230., 240., 250., 260., 270., 280., 290., 300.,
310., 320., 330., 340., 350., 360.,

*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

SOURCE # 1---BELT-TO-HOPPER, VOLUME SOURCE, 5X5X19.4
SOURCE # 2---HOPPER-TO-RAILCAR, VOLUME SOURCE,3X12X5.

*** 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	1	0	10	0.610	0.	0.	0.0	9.68	9.0	1.20	0.00	0.0	0.0	0.0
2	1	0	10	0.160	0.	0.	0.0	2.74	2.6	1.40	0.00	0.0	0.0	0.0

*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

*** SOURCE PARTICULATE DATA ***

*** SOURCE NUMBER = 1 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.80000,

*** SOURCE NUMBER = 2 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.80000,

'A'-DAY
366 DAYS
SGROUP# 1
YEAR 1976
*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 30.1 AND OCCURRED AT (150.0, 180.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0	1500.0	3000.0	5000.0
360.0 /	26.8	18.8	11.1	5.4	3.4	1.1	0.4	0.2
350.0 /	22.0	15.3	8.9	4.4	2.7	0.9	0.3	0.1
340.0 /	21.1	14.7	8.6	4.2	2.6	0.8	0.3	0.1
330.0 /	15.9	10.9	6.3	3.0	1.8	0.6	0.2	0.1
320.0 /	15.4	10.6	6.2	3.0	1.8	0.6	0.2	0.1
310.0 /	19.1	13.2	7.7	3.7	2.3	0.7	0.2	0.1
300.0 /	25.3	17.6	10.3	5.1	3.1	1.0	0.3	0.2
290.0 /	19.0	13.2	7.7	3.7	2.3	0.7	0.2	0.1
280.0 /	12.4	8.4	4.7	2.2	1.3	0.4	0.1	0.1
270.0 /	24.0	16.8	9.9	4.9	3.0	1.0	0.3	0.2
260.0 /	25.6	17.9	10.6	5.2	3.2	1.0	0.4	0.2
250.0 /	20.8	14.5	8.5	4.2	2.6	0.8	0.3	0.1
240.0 /	22.0	15.2	8.8	4.3	2.6	0.8	0.3	0.1
230.0 /	24.5	17.0	10.0	4.9	3.0	0.9	0.3	0.1
220.0 /	21.4	14.9	8.7	4.3	2.6	0.8	0.3	0.1
210.0 /	20.5	14.3	8.4	4.1	2.5	0.8	0.3	0.1
200.0 /	24.1	16.9	9.9	4.9	3.0	1.0	0.3	0.2
190.0 /	24.2	16.8	9.8	4.8	3.0	0.9	0.3	0.1
180.0 /	30.1	21.1	12.5	6.2	3.8	1.2	0.4	0.2
170.0 /	16.8	11.6	6.7	3.2	1.9	0.6	0.2	0.1
160.0 /	13.9	9.7	5.6	2.7	1.7	0.5	0.2	0.1
150.0 /	9.1	6.2	3.5	1.6	1.0	0.3	0.1	0.0
140.0 /	11.5	7.9	4.6	2.2	1.3	0.4	0.1	0.1
130.0 /	9.9	6.7	3.8	1.7	1.0	0.3	0.1	0.0
120.0 /	14.7	10.3	6.0	3.0	1.8	0.6	0.2	0.1
110.0 /	14.5	10.1	5.9	2.9	1.8	0.6	0.2	0.1
100.0 /	12.9	8.9	5.1	2.5	1.5	0.5	0.2	0.1
90.0 /	16.7	11.7	6.9	3.4	2.1	0.7	0.2	0.1
80.0 /	9.5	6.5	3.7	1.8	1.1	0.3	0.1	0.0
70.0 /	9.6	6.7	3.9	1.9	1.2	0.4	0.1	0.1
60.0 /	14.5	10.1	5.9	2.9	1.8	0.5	0.2	0.1
50.0 /	12.0	8.3	4.8	2.3	1.4	0.4	0.2	0.1
40.0 /	10.5	7.2	4.2	2.0	1.2	0.4	0.1	0.1
30.0 /	8.6	5.9	3.3	1.6	0.9	0.3	0.1	0.0
20.0 /	9.7	6.6	3.8	1.8	1.1	0.3	0.1	0.0
10.0 /	16.0	11.0	6.3	3.0	1.8	0.6	0.2	0.1

HIGH
24-HR
SGROUP# 1
YEAR 197o
*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 716.5 AND OCCURRED AT (150.0, 260.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	576.4 (35, 1)	410.1 (35, 1)	242.0 (35, 1)	120.4 (35, 1)	75.2 (35, 1)
350.0 /	692.8 (164, 1)	503.2 (164, 1)	306.6 (164, 1)	157.6 (164, 1)	100.4 (164, 1)
340.0 /	704.7 (24, 1)	505.3 (24, 1)	302.6 (24, 1)	152.9 (24, 1)	96.3 (24, 1)
330.0 /	363.5 (25, 1)	257.9 (25, 1)	153.5 (212, 1)	79.8 (212, 1)	51.0 (212, 1)
320.0 /	216.7 (247, 1)	155.4 (247, 1)	93.6 (247, 1)	47.7 (247, 1)	30.3 (247, 1)
310.0 /	667.7 (347, 1)	484.1 (347, 1)	295.3 (347, 1)	151.9 (347, 1)	96.7 (347, 1)
300.0 /	664.0 (47, 1)	479.9 (47, 1)	291.7 (47, 1)	149.7 (47, 1)	95.4 (47, 1)
290.0 /	358.6 (124, 1)	261.2 (124, 1)	159.6 (124, 1)	82.4 (124, 1)	52.5 (124, 1)
280.0 /	229.6 (229, 1)	161.0 (229, 1)	93.8 (229, 1)	45.5 (229, 1)	28.0 (229, 1)
270.0 /	520.7 (120, 1)	380.5 (120, 1)	234.0 (120, 1)	121.7 (120, 1)	77.9 (120, 1)
260.0 /	716.5 (12, 1)	512.5 (12, 1)	306.2 (12, 1)	154.0 (12, 1)	96.9 (12, 1)
250.0 /	618.0 (165, 1)	455.3 (165, 1)	283.3 (165, 1)	149.1 (165, 1)	96.4 (165, 1)
240.0 /	305.3 (234, 1)	212.0 (234, 1)	121.6 (234, 1)	59.8 (15, 1)	38.8 (15, 1)
230.0 /	432.4 (253, 1)	315.4 (253, 1)	194.1 (253, 1)	101.7 (253, 1)	65.8 (253, 1)
220.0 /	353.2 (217, 1)	260.2 (217, 1)	161.9 (217, 1)	85.3 (217, 1)	55.1 (217, 1)
210.0 /	362.8 (205, 1)	267.8 (205, 1)	167.5 (205, 1)	89.2 (205, 1)	58.1 (205, 1)
200.0 /	444.2 (13, 1)	322.1 (13, 1)	195.8 (13, 1)	100.8 (13, 1)	64.3 (13, 1)
190.0 /	649.6 (2, 1)	465.7 (2, 1)	284.9 (251, 1)	148.5 (251, 1)	95.5 (251, 1)
180.0 /	447.4 (264, 1)	322.0 (264, 1)	197.3 (353, 1)	106.0 (353, 1)	69.1 (353, 1)
170.0 /	395.3 (14, 1)	287.9 (14, 1)	176.4 (14, 1)	91.2 (14, 1)	58.3 (14, 1)
160.0 /	235.8 (314, 1)	160.6 (314, 1)	90.1 (314, 1)	49.0 (23, 1)	32.3 (23, 1)
150.0 /	193.0 (93, 1)	141.8 (93, 1)	88.0 (93, 1)	46.1 (93, 1)	29.6 (93, 1)
140.0 /	536.8 (204, 1)	384.7 (204, 1)	230.9 (204, 1)	116.5 (204, 1)	73.3 (204, 1)
130.0 /	246.4 (16, 1)	174.6 (16, 1)	103.7 (16, 1)	51.3 (16, 1)	32.1 (16, 1)
120.0 /	398.7 (315, 1)	295.4 (315, 1)	185.0 (315, 1)	98.2 (315, 1)	63.8 (315, 1)
110.0 /	510.7 (365, 1)	363.1 (365, 1)	215.2 (365, 1)	107.6 (365, 1)	67.5 (365, 1)
100.0 /	552.0 (277, 1)	392.7 (277, 1)	232.9 (277, 1)	116.4 (277, 1)	73.0 (277, 1)
90.0 /	455.5 (276, 1)	329.2 (276, 1)	200.3 (276, 1)	103.4 (276, 1)	66.0 (276, 1)
80.0 /	513.5 (192, 1)	367.5 (192, 1)	220.0 (192, 1)	111.1 (192, 1)	70.2 (192, 1)
70.0 /	181.7 (261, 1)	131.3 (261, 1)	79.9 (261, 1)	40.9 (261, 1)	26.1 (261, 1)
60.0 /	374.1 (230, 1)	269.5 (230, 1)	163.3 (230, 1)	83.0 (230, 1)	52.6 (230, 1)
50.0 /	612.8 (209, 1)	452.4 (209, 1)	281.7 (209, 1)	149.2 (209, 1)	96.9 (209, 1)
40.0 /	620.7 (95, 1)	447.4 (95, 1)	270.7 (95, 1)	138.4 (95, 1)	88.0 (95, 1)
30.0 /	279.6 (37, 1)	196.3 (37, 1)	115.2 (37, 1)	55.3 (37, 1)	33.7 (37, 1)
20.0 /	185.4 (170, 1)	131.8 (170, 1)	78.6 (185, 1)	42.2 (185, 1)	27.6 (185, 1)
10.0 /	520.6 (208, 1)	383.4 (208, 1)	233.8 (208, 1)	120.9 (208, 1)	77.3 (208, 1)

HIGH
24-HR
SGROUP# 1
YEAR 1976
*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 716.5 AND OCCURRED AT (150.0, 260.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	23.6 (35, 1)	8.0 (35, 1)	3.5 (35, 1)
350.0 /	33.1 (164, 1)	11.7 (164, 1)	5.3 (164, 1)
340.0 /	30.9 (24, 1)	10.6 (24, 1)	4.7 (24, 1)
330.0 /	16.9 (212, 1)	6.1 (212, 1)	2.8 (212, 1)
320.0 /	9.9 (247, 1)	3.5 (247, 1)	1.6 (247, 1)
310.0 /	32.3 (347, 1)	11.6 (347, 1)	5.4 (347, 1)
300.0 /	31.8 (47, 1)	11.3 (47, 1)	5.2 (47, 1)
290.0 /	17.3 (124, 1)	6.1 (124, 1)	2.7 (124, 1)
280.0 /	6.5 (229, 1)	2.9 (190, 1)	1.3 (190, 1)
270.0 /	25.9 (120, 1)	9.3 (120, 1)	4.2 (120, 1)
260.0 /	31.2 (299, 1)	11.4 (299, 1)	5.2 (299, 1)
250.0 /	33.0 (165, 1)	12.1 (165, 1)	5.6 (165, 1)
240.0 /	13.6 (15, 1)	5.1 (15, 1)	2.4 (15, 1)
230.0 /	22.4 (253, 1)	8.2 (253, 1)	3.8 (253, 1)
220.0 /	18.7 (217, 1)	6.8 (217, 1)	3.2 (217, 1)
210.0 /	20.1 (205, 1)	7.5 (205, 1)	3.5 (205, 1)
200.0 /	21.2 (13, 1)	7.5 (13, 1)	3.4 (13, 1)
190.0 /	32.1 (251, 1)	11.6 (251, 1)	5.3 (251, 1)
180.0 /	24.1 (353, 1)	9.1 (353, 1)	4.3 (353, 1)
170.0 /	19.3 (14, 1)	6.9 (14, 1)	3.1 (14, 1)
160.0 /	11.5 (23, 1)	4.5 (23, 1)	2.2 (23, 1)
150.0 /	10.1 (93, 1)	3.7 (93, 1)	1.7 (93, 1)
140.0 /	23.8 (204, 1)	8.3 (204, 1)	3.7 (204, 1)
130.0 /	10.1 (16, 1)	3.4 (16, 1)	1.5 (16, 1)
120.0 /	21.7 (315, 1)	7.9 (315, 1)	3.7 (315, 1)
110.0 /	21.4 (365, 1)	7.3 (365, 1)	3.2 (365, 1)
100.0 /	23.2 (277, 1)	7.9 (277, 1)	3.5 (277, 1)
90.0 /	21.9 (276, 1)	7.8 (276, 1)	3.6 (276, 1)
80.0 /	22.7 (192, 1)	7.9 (192, 1)	3.5 (192, 1)
70.0 /	8.6 (261, 1)	3.1 (261, 1)	1.4 (261, 1)
60.0 /	17.4 (230, 1)	6.1 (230, 1)	2.8 (230, 1)
50.0 /	33.2 (209, 1)	12.2 (209, 1)	5.7 (209, 1)
40.0 /	29.1 (95, 1)	10.3 (95, 1)	4.7 (95, 1)
30.0 /	10.7 (37, 1)	3.6 (37, 1)	1.6 (37, 1)
20.0 /	9.6 (185, 1)	3.6 (185, 1)	1.7 (185, 1)
10.0 /	25.8 (208, 1)	9.3 (208, 1)	4.3 (208, 1)

2ND HIGH
24-HR
SGROUP# 1
YEAR 1976
*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 636.4 AND OCCURRED AT (150.0, 190.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	357.1 (288, 1)	259.8 (288, 1)	159.0 (288, 1)	82.2 (288, 1)	52.5 (288, 1)
350.0 /	615.5 (180, 1)	442.6 (180, 1)	266.8 (180, 1)	135.5 (180, 1)	86.0 (180, 1)
340.0 /	543.0 (48, 1)	389.7 (48, 1)	235.2 (48, 1)	119.8 (48, 1)	75.9 (48, 1)
330.0 /	341.6 (212, 1)	249.6 (212, 1)	153.5 (25, 1)	77.5 (25, 1)	49.0 (25, 1)
320.0 /	193.8 (62, 1)	139.7 (62, 1)	84.9 (62, 1)	43.9 (62, 1)	28.1 (62, 1)
310.0 /	520.7 (102, 1)	381.5 (102, 1)	235.5 (102, 1)	123.4 (102, 1)	79.5 (102, 1)
300.0 /	406.4 (3, 1)	293.6 (3, 1)	178.1 (3, 1)	91.7 (3, 1)	58.7 (3, 1)
290.0 /	331.5 (260, 1)	230.8 (260, 1)	132.9 (260, 1)	63.8 (260, 1)	38.9 (260, 1)
280.0 /	215.5 (271, 1)	150.8 (271, 1)	88.0 (271, 1)	43.2 (271, 1)	26.7 (271, 1)
270.0 /	407.1 (86, 1)	290.8 (86, 1)	173.8 (86, 1)	87.8 (86, 1)	55.3 (86, 1)
260.0 /	595.3 (299, 1)	437.6 (299, 1)	270.9 (299, 1)	142.4 (299, 1)	92.1 (299, 1)
250.0 /	382.6 (79, 1)	275.7 (79, 1)	166.4 (79, 1)	88.7 (281, 1)	57.6 (281, 1)
240.0 /	260.8 (46, 1)	187.2 (46, 1)	112.1 (15, 1)	58.3 (234, 1)	35.5 (234, 1)
230.0 /	331.5 (177, 1)	236.2 (177, 1)	141.5 (177, 1)	71.9 (177, 1)	45.4 (177, 1)
220.0 /	271.6 (190, 1)	201.0 (190, 1)	125.5 (190, 1)	66.4 (190, 1)	43.0 (190, 1)
210.0 /	335.4 (254, 1)	248.3 (254, 1)	154.9 (254, 1)	81.9 (254, 1)	53.1 (254, 1)
200.0 /	341.2 (317, 1)	244.1 (317, 1)	146.9 (68, 1)	75.8 (68, 1)	48.3 (68, 1)
190.0 /	636.4 (251, 1)	464.4 (251, 1)	279.2 (2, 1)	141.6 (2, 1)	89.5 (2, 1)
180.0 /	417.5 (353, 1)	311.5 (353, 1)	194.2 (264, 1)	98.2 (264, 1)	61.9 (264, 1)
170.0 /	177.7 (125, 1)	124.2 (125, 1)	72.4 (125, 1)	35.0 (125, 1)	21.4 (125, 1)
160.0 /	182.6 (23, 1)	137.4 (23, 1)	88.8 (23, 1)	42.2 (314, 1)	25.6 (21, 1)
150.0 /	88.6 (211, 1)	61.5 (211, 1)	35.5 (211, 1)	17.8 (351, 1)	11.5 (351, 1)
140.0 /	345.4 (350, 1)	251.1 (350, 1)	153.2 (350, 1)	79.0 (350, 1)	50.4 (350, 1)
130.0 /	161.2 (289, 1)	109.5 (289, 1)	61.0 (289, 1)	28.2 (1, 1)	16.9 (1, 1)
120.0 /	308.1 (3, 1)	224.0 (3, 1)	137.4 (3, 1)	73.4 (71, 1)	48.0 (71, 1)
110.0 /	248.0 (41, 1)	185.2 (41, 1)	117.6 (41, 1)	63.4 (41, 1)	41.4 (41, 1)
100.0 /	403.6 (189, 1)	290.3 (189, 1)	174.8 (189, 1)	89.2 (189, 1)	56.6 (189, 1)
90.0 /	403.5 (66, 1)	290.0 (66, 1)	175.4 (66, 1)	88.3 (66, 1)	55.7 (66, 1)
80.0 /	287.7 (62, 1)	202.8 (62, 1)	119.4 (62, 1)	59.2 (62, 1)	37.0 (62, 1)
70.0 /	127.4 (30, 1)	92.1 (30, 1)	56.6 (30, 1)	29.5 (30, 1)	18.7 (30, 1)
60.0 /	361.2 (188, 1)	256.2 (188, 1)	151.7 (188, 1)	75.8 (188, 1)	47.6 (188, 1)
50.0 /	216.5 (352, 1)	151.1 (352, 1)	88.7 (265, 1)	46.6 (265, 1)	29.9 (265, 1)
40.0 /	185.5 (207, 1)	135.8 (207, 1)	84.7 (207, 1)	44.5 (207, 1)	28.6 (207, 1)
30.0 /	154.5 (123, 1)	112.4 (123, 1)	69.5 (123, 1)	35.9 (123, 1)	22.9 (123, 1)
20.0 /	165.9 (185, 1)	123.9 (185, 1)	78.2 (170, 1)	39.1 (170, 1)	24.4 (170, 1)
10.0 /	396.4 (147, 1)	284.2 (147, 1)	170.5 (147, 1)	86.3 (147, 1)	54.4 (147, 1)

2ND HIGH
24-HR
SGROUP# 1
YEAR 1976
*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 636.4 AND OCCURRED AT (150.0, 190.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	17.5 (288, 1)	6.3 (288, 1)	2.8 (288, 1)
350.0 /	28.1 (180, 1)	9.9 (180, 1)	4.5 (180, 1)
340.0 /	25.0 (48, 1)	8.9 (48, 1)	4.0 (48, 1)
330.0 /	16.0 (25, 1)	5.7 (25, 1)	2.6 (129, 1)
320.0 /	9.4 (62, 1)	3.4 (62, 1)	1.6 (62, 1)
310.0 /	26.9 (102, 1)	9.8 (102, 1)	4.5 (102, 1)
300.0 /	19.5 (3, 1)	7.0 (3, 1)	3.2 (3, 1)
290.0 /	11.6 (260, 1)	4.1 (89, 1)	1.9 (89, 1)
280.0 /	8.3 (271, 1)	2.8 (271, 1)	1.2 (271, 1)
270.0 /	17.9 (86, 1)	6.2 (86, 1)	2.8 (86, 1)
260.0 /	30.9 (12, 1)	10.6 (12, 1)	4.6 (12, 1)
250.0 /	19.9 (281, 1)	7.4 (281, 1)	3.5 (281, 1)
240.0 /	11.2 (46, 1)	3.8 (46, 1)	1.7 (157, 1)
230.0 /	14.6 (177, 1)	5.3 (177, 1)	2.4 (177, 1)
220.0 /	14.6 (190, 1)	5.3 (190, 1)	2.5 (190, 1)
210.0 /	18.1 (254, 1)	6.5 (254, 1)	3.0 (254, 1)
200.0 /	15.8 (68, 1)	5.6 (68, 1)	2.5 (68, 1)
190.0 /	29.1 (2, 1)	10.2 (2, 1)	4.6 (2, 1)
180.0 /	20.0 (264, 1)	7.0 (264, 1)	3.1 (264, 1)
170.0 /	7.8 (278, 1)	2.6 (278, 1)	1.2 (278, 1)
160.0 /	8.7 (21, 1)	3.2 (21, 1)	1.5 (21, 1)
150.0 /	4.8 (109, 1)	1.6 (109, 1)	0.8 (109, 1)
140.0 /	16.5 (350, 1)	5.8 (350, 1)	2.6 (350, 1)
130.0 /	4.9 (1, 1)	1.8 (353, 1)	0.9 (353, 1)
120.0 /	18.7 (71, 1)	6.2 (71, 1)	2.9 (71, 1)
110.0 /	14.4 (41, 1)	5.5 (41, 1)	2.6 (41, 1)
100.0 /	18.5 (189, 1)	6.5 (189, 1)	2.9 (189, 1)
90.0 /	16.2 (66, 1)	6.4 (66, 1)	3.0 (113, 1)
80.0 /	11.7 (62, 1)	4.0 (62, 1)	1.8 (62, 1)
70.0 /	6.2 (30, 1)	2.3 (30, 1)	1.1 (30, 1)
60.0 /	15.1 (188, 1)	5.2 (188, 1)	2.3 (188, 1)
50.0 /	10.1 (265, 1)	3.7 (265, 1)	1.7 (265, 1)
40.0 /	9.8 (207, 1)	3.6 (207, 1)	1.7 (207, 1)
30.0 /	7.7 (123, 1)	2.8 (123, 1)	1.3 (123, 1)
20.0 /	7.7 (170, 1)	2.6 (170, 1)	1.2 (333, 1)
10.0 /	17.5 (147, 1)	6.1 (147, 1)	2.7 (147, 1)

MAX 50
24-HR
SGROUP= 1
YEAR 1976
*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

* 50 MAXIMUM 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM ALL SOURCES *

RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)	RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)
1	716.47436	1	12	150.0	260.0	26	502.75427	1	163	150.0	260.0
2	704.70361	1	24	150.0	340.0	27	484.11639	1	347	200.0	310.0
3	692.79199	1	164	150.0	350.0	28	479.92200	1	47	200.0	300.0
4	667.68384	1	347	150.0	310.0	29	465.69153	1	2	200.0	190.0
5	663.95642	1	47	150.0	300.0	30	464.42621	1	251	200.0	190.0
6	649.64075	1	2	150.0	190.0	31	459.20166	1	210	150.0	340.0
7	636.43701	1	251	150.0	190.0	32	455.46350	1	276	150.0	90.0
8	620.72742	1	95	150.0	40.0	33	455.27392	1	165	200.0	250.0
9	617.97217	1	165	150.0	250.0	34	452.44409	1	209	200.0	50.0
10	615.52295	1	180	150.0	350.0	35	447.40967	1	264	150.0	180.0
11	612.64143	1	209	150.0	50.0	36	447.38501	1	95	200.0	40.0
12	595.29040	1	299	150.0	260.0	37	444.20312	1	13	150.0	200.0
13	578.35022	1	35	150.0	360.0	38	442.59759	1	180	200.0	350.0
14	552.02405	1	277	150.0	100.0	39	437.61932	1	299	200.0	260.0
15	542.98303	1	48	150.0	340.0	40	437.33777	1	206	150.0	190.0
16	536.81628	1	204	150.0	140.0	41	432.40564	1	253	150.0	230.0
17	528.78699	1	208	150.0	10.0	42	424.64300	1	153	150.0	350.0
18	520.69934	1	102	150.0	310.0	43	417.49066	1	353	150.0	180.0
19	520.65002	1	120	150.0	270.0	44	410.07611	1	35	200.0	360.0
20	513.49939	1	192	150.0	80.0	45	407.14856	1	86	150.0	270.0
21	512.52954	1	12	200.0	260.0	46	406.37219	1	3	150.0	300.0
22	511.62085	1	23	150.0	340.0	47	405.57275	1	354	150.0	180.0
23	510.67493	1	365	150.0	110.0	48	403.55273	1	189	150.0	100.0
24	505.28632	1	24	200.0	340.0	49	403.47925	1	66	150.0	90.0
25	503.20001	1	164	200.0	350.0	50	398.65539	1	315	150.0	120.0

*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	578.4	410.1	242.0	120.4	75.2
350.0 /	692.8	503.2	306.6	157.6	100.4
340.0 /	704.7	505.3	302.6	152.9	96.3
330.0 /	363.5	257.9	153.5	79.8	51.0
320.0 /	216.7	155.4	93.6	47.7	30.3
310.0 /	667.7	484.1	295.3	151.9	96.7
300.0 /	664.0	479.9	291.7	149.7	95.4
290.0 /	358.6	261.2	159.6	82.4	52.5
280.0 /	229.6	161.0	93.8	45.5	28.0
270.0 /	520.7	380.5	234.0	121.7	77.9
260.0 /	716.5	512.5	306.2	154.0	96.9
250.0 /	618.0	455.3	283.3	149.1	96.4
240.0 /	305.3	212.0	121.6	59.8	38.8
230.0 /	432.4	315.4	194.1	101.7	65.8
220.0 /	353.2	260.2	161.9	85.3	55.1
210.0 /	362.8	267.8	167.5	89.2	58.1
200.0 /	444.2	322.1	195.8	100.8	64.3
190.0 /	649.6	465.7	284.9	148.5	95.5
180.0 /	447.4	322.0	197.3	106.0	69.1
170.0 /	395.3	287.9	176.4	91.2	58.3
160.0 /	235.8	160.6	90.1	49.0	32.3
150.0 /	193.0	141.8	88.0	46.1	29.6
140.0 /	536.8	384.7	230.9	116.5	73.3
130.0 /	246.4	174.6	103.7	51.3	32.1
120.0 /	398.7	295.4	185.0	98.2	63.8
110.0 /	510.7	363.1	215.2	107.6	67.5
100.0 /	552.0	392.7	232.9	116.4	73.0
90.0 /	455.5	329.2	200.3	103.4	66.0
80.0 /	513.5	367.5	220.0	111.1	70.2
70.0 /	181.7	131.3	79.9	40.9	26.1
60.0 /	374.1	269.5	163.3	83.0	52.6
50.0 /	612.8	452.4	281.7	149.2	96.9
40.0 /	620.7	447.4	270.7	138.4	88.0
30.0 /	279.8	196.3	115.2	55.3	33.7
20.0 /	185.4	131.8	78.6	42.2	27.6
10.0 /	528.8	383.4	233.8	120.9	77.3

*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	23.6	8.0	3.5
350.0 /	33.1	11.7	5.3
340.0 /	30.9	10.6	4.7
330.0 /	16.9	6.1	2.8
320.0 /	9.9	3.5	1.6
310.0 /	32.3	11.6	5.4
300.0 /	31.8	11.3	5.2
290.0 /	17.3	6.1	2.7
280.0 /	8.5	2.9	1.3
270.0 /	25.9	9.3	4.2
260.0 /	31.2	11.4	5.2
250.0 /	33.0	12.1	5.6
240.0 /	13.6	5.1	2.4
230.0 /	22.4	8.2	3.8
220.0 /	18.7	6.8	3.2
210.0 /	20.1	7.5	3.5
200.0 /	21.2	7.5	3.4
190.0 /	32.1	11.6	5.3
180.0 /	24.1	9.1	4.3
170.0 /	19.3	6.9	3.1
160.0 /	11.5	4.5	2.2
150.0 /	10.1	3.7	1.7
140.0 /	23.8	8.3	3.7
130.0 /	10.1	3.4	1.5
120.0 /	21.7	7.9	3.7
110.0 /	21.4	7.3	3.2
100.0 /	23.2	7.9	3.5
90.0 /	21.9	7.8	3.6
80.0 /	22.7	7.9	3.5
70.0 /	8.6	3.1	1.4
60.0 /	17.4	6.1	2.8
50.0 /	33.2	12.2	5.7
40.0 /	29.1	10.3	4.7
30.0 /	10.7	3.6	1.6
20.0 /	9.6	3.6	1.7
10.0 /	25.8	9.3	4.3

*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	357.1	259.8	159.0	82.2	52.5
350.0 /	615.5	442.6	266.8	135.5	86.0
340.0 /	543.0	389.7	235.2	119.8	75.9
330.0 /	341.6	249.6	153.5	77.5	49.0
320.0 /	193.8	139.7	84.9	43.9	28.1
310.0 /	520.7	381.5	235.5	123.4	79.5
300.0 /	406.4	293.6	178.1	91.7	58.7
290.0 /	331.5	230.8	132.9	63.8	38.9
280.0 /	215.5	150.8	88.0	43.2	26.7
270.0 /	407.1	290.8	173.8	87.8	55.3
260.0 /	595.3	437.6	270.9	142.4	92.1
250.0 /	382.6	275.7	166.4	88.7	57.6
240.0 /	260.8	187.2	112.1	58.3	35.5
230.0 /	331.5	236.2	141.5	71.9	45.4
220.0 /	271.6	201.0	125.5	66.4	43.0
210.0 /	335.4	248.3	154.9	81.9	53.1
200.0 /	341.2	244.1	146.9	75.8	48.3
190.0 /	636.4	464.4	279.2	141.6	89.5
180.0 /	417.5	311.5	194.2	98.2	61.9
170.0 /	177.7	124.2	72.4	35.0	21.4
160.0 /	182.6	137.4	88.8	42.2	25.6
150.0 /	88.6	61.5	35.5	17.8	11.5
140.0 /	345.4	251.1	153.2	73.0	50.4
130.0 /	161.2	109.5	61.0	28.2	16.9
120.0 /	308.1	224.0	137.4	73.4	48.0
110.0 /	246.0	185.2	117.6	63.4	41.4
100.0 /	403.6	290.3	174.8	89.2	56.6
90.0 /	403.5	290.0	175.4	88.3	55.7
80.0 /	287.7	202.8	119.4	59.2	37.0
70.0 /	127.4	92.1	56.6	29.5	18.7
60.0 /	361.2	256.2	151.7	75.8	47.6
50.0 /	216.5	151.1	88.7	46.6	29.9
40.0 /	185.5	135.8	84.7	44.5	28.6
30.0 /	154.5	112.4	69.5	35.9	22.9
20.0 /	165.9	123.9	78.2	39.1	24.4
10.0 /	396.4	284.2	170.5	86.3	54.4

*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA. ***

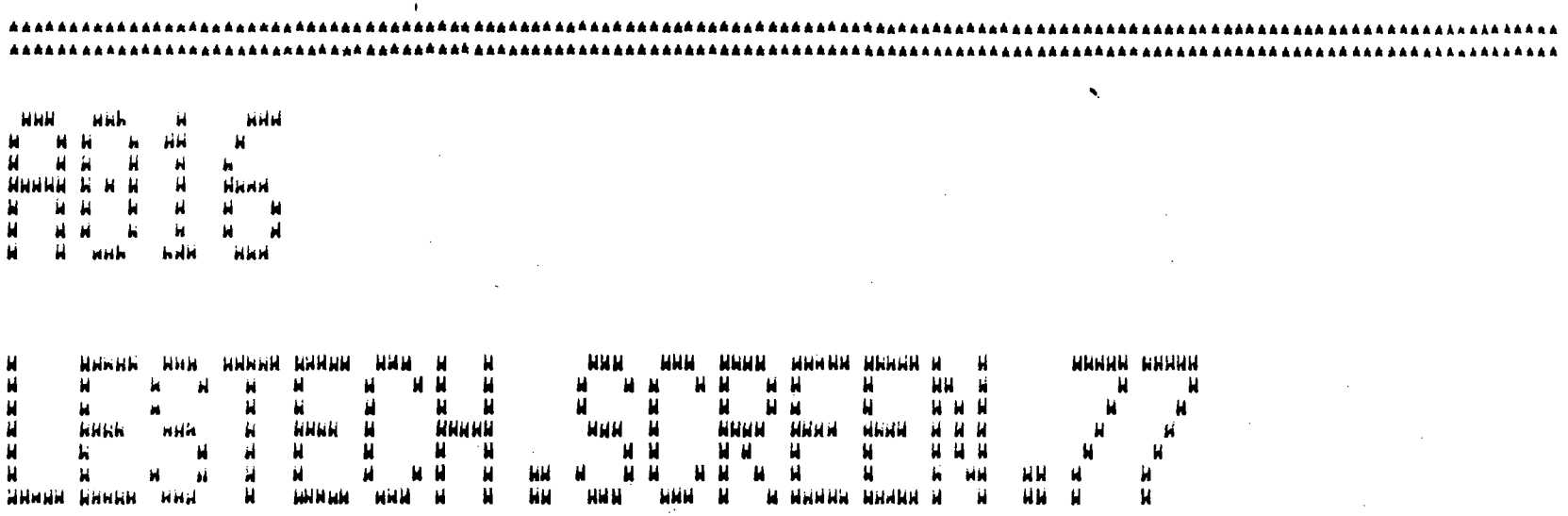
COMPOSITE SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	17.5	6.3	2.8
350.0 /	28.1	9.9	4.5
340.0 /	25.0	8.9	4.0
330.0 /	16.0	5.7	2.6
320.0 /	9.4	3.4	1.6
310.0 /	26.9	9.8	4.5
300.0 /	19.5	7.0	3.2
290.0 /	11.6	4.1	1.9
280.0 /	8.3	2.8	1.2
270.0 /	17.9	6.2	2.8
260.0 /	30.9	10.6	4.6
250.0 /	19.9	7.4	3.5
240.0 /	11.2	3.8	1.7
230.0 /	14.8	5.3	2.4
220.0 /	14.6	5.3	2.5
210.0 /	18.1	6.5	3.0
200.0 /	15.8	5.6	2.5
190.0 /	29.1	10.2	4.6
180.0 /	20.0	7.0	3.1
170.0 /	7.0	2.6	1.2
160.0 /	8.7	3.2	1.5
150.0 /	4.0	1.6	0.8
140.0 /	16.5	5.8	2.6
130.0 /	4.9	1.8	0.9
120.0 /	16.7	6.2	2.9
110.0 /	14.4	5.5	2.6
100.0 /	18.5	6.5	2.9
90.0 /	18.2	6.4	3.0
80.0 /	11.7	4.0	1.8
70.0 /	6.2	2.3	1.1
60.0 /	15.1	5.2	2.3
50.0 /	10.1	3.7	1.7
40.0 /	9.8	3.6	1.7
30.0 /	7.7	2.8	1.3
20.0 /	7.7	2.6	1.2
10.0 /	17.5	6.1	2.7

USER: A016 -AT

<ESEACT>A016>LESTECH.SCREEN.77



LABEL: PRT015 -FORM PR1

PATHNAME: <ESEACT>A016>LESTECH.SCREEN.77
FILE LAST MODIFIED: 86-11-11.12:02:52.TUE

SPOOLED: 86-11-11.12:06:24.TUE ESPOOLER REV 19.4.51
STARTED: 86-11-11.12:10:08.TUE ON: PR1 BY: PR1

*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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) =	0
4-HOUR (YES=1,NO=0)	ISW(10) =	0
6-HOUR (YES=1,NO=0)	ISW(11) =	0
8-HOUR (YES=1,NO=0)	ISW(12) =	0
12-HOUR (YES=1,NO=0)	ISW(13) =	0
24-HOUR (YES=1,NO=0)	ISW(14) =	1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) =	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) =	1
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 =	8
NUMBER OF Y (THETA) GRID VALUES	NYPNTS =	36
NUMBER OF DISCRETE RECEPTORS	NXHYPT =	0
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	IK =	.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 = 7.10 METERS		
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET =	9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION DECAY = 0.000000E+00		
SURFACE STATION NO.	ISS =	12815
YEAR OF SURFACE DATA	ISY =	77
UPPER AIR STATION NO.	IUS =	12842
YEAR OF UPPER AIR DATA	IUY =	77
ALLOCATED DATA STORAGE	LIMIT =	43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT =	2979 WORDS

*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

1111111111 1111111111 1111111111 1111111111 1111111111
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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

*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

150., 200., 300., 500., 700., 1500., 3000., 5000.,

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

(DEGREES)

10., 20., 30., 40., 50., 60., 70., 80., 90., 100.,
110., 120., 130., 140., 150., 160., 170., 180., 190., 200.,
210., 220., 230., 240., 250., 260., 270., 280., 290., 300.,
310., 320., 330., 340., 350., 360.,

*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

SOURCE # 1---BELT-TO-HOPPER, VOLUME SOURCE, 5X5X19.4
SOURCE # 2---HOPPER-TO-RAILCAR, VOLUME SOURCE,3X12X5.

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	AK	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	1	0	10	0.610	0.	0.	0.0	9.68	9.0	1.20	0.00	0.0	0.0	0.0
2	1	0	10	0.160	0.	0.	0.0	2.74	2.6	1.40	0.00	0.0	0.0	0.0

*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

*** SOURCE PARTICULATE DATA ***

*** SOURCE NUMBER = 1 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.80000,

*** SOURCE NUMBER = 2 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.80000,

'N'-DAY
365 DAYS
SGROUP# 1
YEAR 1977
*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 32.6 AND OCCURRED AT (150.0, 230.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0	1500.0	3000.0	5000.0
360.0 /	32.3	22.7	13.5	6.6	4.1	1.3	0.5	0.2
350.0 /	20.5	14.1	8.1	3.9	2.4	0.7	0.3	0.1
340.0 /	20.6	14.4	8.4	4.1	2.5	0.8	0.3	0.1
330.0 /	16.2	11.2	6.5	3.1	1.9	0.6	0.2	0.1
320.0 /	14.9	10.3	5.9	2.8	1.7	0.5	0.2	0.1
310.0 /	17.2	11.8	6.8	3.3	2.0	0.6	0.2	0.1
300.0 /	25.0	17.6	10.4	5.2	3.2	1.0	0.4	0.2
290.0 /	11.8	7.9	4.5	2.1	1.2	0.4	0.1	0.1
280.0 /	20.5	14.2	8.3	4.0	2.5	0.8	0.3	0.1
270.0 /	32.3	22.7	13.4	6.6	4.1	1.3	0.5	0.2
260.0 /	21.7	15.1	8.8	4.3	2.7	0.9	0.3	0.1
250.0 /	22.6	15.7	9.1	4.4	2.7	0.9	0.3	0.1
240.0 /	30.1	20.9	12.2	6.0	3.7	1.2	0.4	0.2
230.0 /	32.6	22.9	13.5	6.7	4.1	1.3	0.5	0.2
220.0 /	26.3	18.4	10.8	5.3	3.3	1.1	0.4	0.2
210.0 /	23.3	16.3	9.6	4.7	2.9	0.9	0.3	0.1
200.0 /	14.3	9.9	5.7	2.8	1.7	0.5	0.2	0.1
190.0 /	13.8	9.5	5.5	2.6	1.6	0.5	0.2	0.1
180.0 /	25.3	17.9	10.6	5.3	3.3	1.1	0.4	0.2
170.0 /	12.1	8.3	4.8	2.3	1.4	0.4	0.1	0.1
160.0 /	11.8	8.3	4.9	2.4	1.5	0.5	0.2	0.1
150.0 /	7.1	4.8	2.7	1.3	0.8	0.2	0.1	0.0
140.0 /	7.3	4.9	2.8	1.3	0.8	0.2	0.1	0.0
130.0 /	7.9	5.4	3.0	1.4	0.9	0.3	0.1	0.0
120.0 /	11.1	7.6	4.4	2.1	1.3	0.4	0.1	0.1
110.0 /	10.5	7.2	4.2	2.0	1.2	0.4	0.1	0.1
100.0 /	9.8	6.7	3.8	1.8	1.1	0.3	0.1	0.0
90.0 /	15.0	10.6	6.2	3.1	1.9	0.6	0.2	0.1
80.0 /	12.7	8.9	5.2	2.6	1.6	0.5	0.2	0.1
70.0 /	8.2	5.6	3.2	1.5	0.9	0.3	0.1	0.0
60.0 /	14.8	10.3	6.0	3.0	1.8	0.6	0.2	0.1
50.0 /	16.4	11.5	6.8	3.4	2.1	0.7	0.2	0.1
40.0 /	15.3	10.7	6.3	3.1	1.9	0.6	0.2	0.1
30.0 /	8.1	5.5	3.1	1.5	0.9	0.3	0.1	0.0
20.0 /	10.8	7.5	4.3	2.1	1.3	0.4	0.1	0.1
10.0 /	14.4	9.8	5.6	2.6	1.6	0.5	0.2	0.1

HIGH
24-HR
SGROUP# 1
YEAR 1977
*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 884.5 AND OCCURRED AT (150.0, 260.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	600.1 (120, 1)	433.6 (120, 1)	262.6 (120, 1)	134.2 (120, 1)	85.3 (120, 1)
350.0 /	305.6 (249, 1)	221.3 (249, 1)	135.6 (50, 1)	72.1 (50, 1)	46.5 (50, 1)
340.0 /	384.5 (354, 1)	281.2 (354, 1)	173.6 (354, 1)	90.8 (354, 1)	58.3 (354, 1)
330.0 /	738.4 (27, 1)	543.6 (27, 1)	336.6 (27, 1)	176.6 (27, 1)	114.0 (27, 1)
320.0 /	372.4 (74, 1)	263.3 (74, 1)	155.0 (74, 1)	76.9 (74, 1)	47.9 (74, 1)
310.0 /	365.3 (307, 1)	256.0 (307, 1)	149.7 (307, 1)	72.6 (307, 1)	44.8 (307, 1)
300.0 /	744.2 (327, 1)	551.5 (327, 1)	345.0 (327, 1)	183.5 (327, 1)	119.5 (327, 1)
290.0 /	323.1 (149, 1)	226.2 (149, 1)	131.9 (149, 1)	64.6 (149, 1)	40.0 (149, 1)
280.0 /	503.9 (238, 1)	366.0 (238, 1)	222.8 (238, 1)	114.6 (238, 1)	73.0 (238, 1)
270.0 /	469.9 (140, 1)	341.8 (140, 1)	208.9 (108, 1)	108.1 (108, 1)	69.1 (108, 1)
260.0 /	884.5 (257, 1)	654.3 (257, 1)	409.0 (257, 1)	217.2 (257, 1)	141.1 (257, 1)
250.0 /	492.0 (247, 1)	351.6 (247, 1)	209.5 (247, 1)	105.2 (247, 1)	66.2 (247, 1)
240.0 /	548.6 (263, 1)	407.7 (263, 1)	256.1 (263, 1)	136.5 (263, 1)	88.9 (263, 1)
230.0 /	440.7 (182, 1)	323.0 (182, 1)	199.5 (182, 1)	104.1 (182, 1)	67.1 (182, 1)
220.0 /	561.8 (24, 1)	405.2 (24, 1)	244.4 (24, 1)	124.5 (24, 1)	78.7 (24, 1)
210.0 /	335.9 (298, 1)	238.1 (298, 1)	141.7 (288, 1)	73.1 (288, 1)	46.8 (288, 1)
200.0 /	357.5 (192, 1)	254.8 (192, 1)	152.1 (192, 1)	76.5 (192, 1)	48.1 (192, 1)
190.0 /	433.0 (361, 1)	320.1 (361, 1)	200.2 (361, 1)	106.4 (361, 1)	69.2 (361, 1)
180.0 /	421.1 (187, 1)	307.7 (187, 1)	189.2 (187, 1)	98.7 (187, 1)	63.5 (187, 1)
170.0 /	259.8 (43, 1)	187.6 (43, 1)	114.4 (43, 1)	58.1 (43, 1)	36.6 (43, 1)
160.0 /	506.9 (150, 1)	373.5 (150, 1)	231.9 (150, 1)	122.1 (150, 1)	78.9 (150, 1)
150.0 /	99.7 (74, 1)	68.0 (291, 1)	43.3 (291, 1)	23.3 (291, 1)	15.2 (291, 1)
140.0 /	93.2 (365, 1)	63.6 (365, 1)	36.2 (365, 1)	17.4 (165, 1)	11.1 (165, 1)
130.0 /	162.5 (311, 1)	120.4 (311, 1)	75.4 (311, 1)	40.1 (311, 1)	26.1 (311, 1)
120.0 /	174.1 (261, 1)	124.2 (261, 1)	74.1 (261, 1)	36.8 (261, 1)	23.0 (261, 1)
110.0 /	400.8 (290, 1)	296.0 (290, 1)	184.6 (290, 1)	97.6 (290, 1)	63.3 (290, 1)
100.0 /	286.1 (5, 1)	208.0 (5, 1)	127.4 (5, 1)	65.8 (5, 1)	41.9 (5, 1)
90.0 /	663.5 (353, 1)	490.8 (353, 1)	306.9 (353, 1)	163.4 (353, 1)	106.4 (353, 1)
80.0 /	563.1 (118, 1)	407.2 (118, 1)	247.3 (118, 1)	127.1 (118, 1)	81.1 (118, 1)
70.0 /	107.6 (253, 1)	69.2 (253, 1)	42.5 (164, 1)	22.1 (164, 1)	14.1 (164, 1)
60.0 /	328.1 (253, 1)	233.0 (253, 1)	139.4 (253, 1)	70.5 (253, 1)	44.6 (253, 1)
50.0 /	601.2 (311, 1)	443.7 (311, 1)	276.7 (311, 1)	146.3 (311, 1)	94.8 (311, 1)
40.0 /	795.8 (119, 1)	589.5 (119, 1)	368.8 (119, 1)	195.6 (119, 1)	127.2 (119, 1)
30.0 /	119.4 (356, 1)	89.1 (356, 1)	56.1 (356, 1)	30.1 (356, 1)	19.6 (356, 1)
20.0 /	276.8 (47, 1)	199.0 (47, 1)	118.9 (47, 1)	60.2 (47, 1)	38.1 (47, 1)
10.0 /	419.9 (302, 1)	303.4 (302, 1)	184.0 (302, 1)	94.7 (302, 1)	60.4 (302, 1)

HIGH
24-HR
SGROUP# 1
YEAR 1977
*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 884.5 AND OCCURRED AT (150.0, 260.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	27.8 (120, 1)	9.7 (120, 1)	4.4 (120, 1)
350.0 /	15.9 (50, 1)	5.9 (50, 1)	2.8 (50, 1)
340.0 /	19.6 (354, 1)	7.1 (354, 1)	3.3 (354, 1)
330.0 /	38.4 (27, 1)	13.8 (27, 1)	6.3 (27, 1)
320.0 /	15.0 (74, 1)	5.1 (74, 1)	2.2 (74, 1)
310.0 /	13.9 (307, 1)	4.7 (121, 1)	2.1 (121, 1)
300.0 /	41.1 (327, 1)	15.1 (327, 1)	7.0 (327, 1)
290.0 /	12.5 (149, 1)	4.2 (149, 1)	1.9 (149, 1)
280.0 /	24.0 (238, 1)	8.4 (238, 1)	3.8 (238, 1)
270.0 /	23.0 (108, 1)	8.2 (108, 1)	3.7 (108, 1)
260.0 /	48.5 (257, 1)	18.0 (257, 1)	8.4 (257, 1)
250.0 /	21.1 (247, 1)	7.2 (247, 1)	3.2 (247, 1)
240.0 /	30.7 (263, 1)	11.3 (263, 1)	5.3 (263, 1)
230.0 /	22.6 (182, 1)	8.2 (182, 1)	3.8 (182, 1)
220.0 /	25.4 (24, 1)	8.8 (24, 1)	3.9 (24, 1)
210.0 /	15.6 (288, 1)	5.6 (288, 1)	2.6 (288, 1)
200.0 /	15.6 (192, 1)	5.5 (192, 1)	2.5 (192, 1)
190.0 /	23.8 (361, 1)	8.8 (361, 1)	4.1 (361, 1)
180.0 /	21.3 (187, 1)	7.7 (187, 1)	3.6 (187, 1)
170.0 /	12.0 (43, 1)	4.3 (43, 1)	2.0 (43, 1)
160.0 /	26.8 (150, 1)	9.7 (150, 1)	4.5 (150, 1)
150.0 /	5.4 (291, 1)	2.1 (291, 1)	1.0 (291, 1)
140.0 /	3.8 (165, 1)	1.4 (165, 1)	0.7 (165, 1)
130.0 /	9.0 (311, 1)	3.3 (311, 1)	1.5 (311, 1)
120.0 /	7.3 (261, 1)	2.5 (16, 1)	1.2 (16, 1)
110.0 /	21.5 (290, 1)	7.8 (290, 1)	3.6 (290, 1)
100.0 /	13.9 (5, 1)	5.0 (5, 1)	2.3 (5, 1)
90.0 /	36.8 (353, 1)	13.7 (353, 1)	6.4 (353, 1)
80.0 /	26.8 (118, 1)	9.5 (118, 1)	4.3 (118, 1)
70.0 /	4.6 (164, 1)	1.7 (164, 1)	0.8 (164, 1)
60.0 /	14.7 (253, 1)	5.3 (253, 1)	2.5 (253, 1)
50.0 /	32.5 (311, 1)	11.9 (311, 1)	5.6 (311, 1)
40.0 /	43.7 (119, 1)	16.1 (119, 1)	7.5 (119, 1)
30.0 /	6.8 (356, 1)	2.5 (356, 1)	1.2 (356, 1)
20.0 /	12.4 (47, 1)	4.3 (47, 1)	1.9 (47, 1)
10.0 /	20.0 (302, 1)	7.1 (302, 1)	3.3 (149, 1)

2ND HIGH
24-HR
SGROUP= 1
YEAR 1977
*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 571.7 AND OCCURRED AT (150.0, 40.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	502.3 (354, 1)	360.2 (354, 1)	217.5 (354, 1)	110.4 (354, 1)	69.8 (354, 1)
350.0 /	292.3 (50, 1)	216.0 (50, 1)	135.0 (249, 1)	69.9 (249, 1)	44.8 (249, 1)
340.0 /	329.3 (209, 1)	231.8 (209, 1)	136.8 (209, 1)	66.4 (209, 1)	41.1 (209, 1)
330.0 /	333.2 (173, 1)	239.2 (173, 1)	144.0 (173, 1)	72.8 (173, 1)	46.0 (173, 1)
320.0 /	267.2 (273, 1)	188.9 (270, 1)	114.5 (270, 1)	58.5 (270, 1)	37.1 (270, 1)
310.0 /	349.0 (121, 1)	243.4 (121, 1)	141.8 (121, 1)	69.4 (121, 1)	43.0 (121, 1)
300.0 /	402.1 (313, 1)	293.3 (313, 1)	180.3 (313, 1)	94.0 (313, 1)	60.4 (313, 1)
290.0 /	184.8 (343, 1)	136.3 (343, 1)	84.9 (343, 1)	44.8 (343, 1)	28.9 (343, 1)
280.0 /	424.1 (228, 1)	310.0 (228, 1)	190.7 (228, 1)	99.1 (228, 1)	63.4 (228, 1)
270.0 /	468.2 (108, 1)	341.1 (108, 1)	198.8 (140, 1)	97.1 (140, 1)	61.3 (260, 1)
260.0 /	295.4 (150, 1)	217.6 (150, 1)	135.2 (150, 1)	71.0 (150, 1)	45.8 (150, 1)
250.0 /	346.3 (156, 1)	255.1 (156, 1)	158.3 (156, 1)	83.3 (156, 1)	53.8 (156, 1)
240.0 /	301.7 (144, 1)	214.9 (144, 1)	129.9 (256, 1)	69.2 (256, 1)	45.3 (256, 1)
230.0 /	402.1 (313, 1)	285.8 (313, 1)	170.0 (313, 1)	84.7 (313, 1)	52.9 (313, 1)
220.0 /	286.8 (224, 1)	205.1 (224, 1)	123.7 (224, 1)	62.6 (224, 1)	39.5 (224, 1)
210.0 /	319.6 (288, 1)	232.0 (288, 1)	141.2 (298, 1)	70.6 (298, 1)	44.1 (298, 1)
200.0 /	176.8 (162, 1)	129.7 (162, 1)	80.3 (162, 1)	42.2 (162, 1)	27.1 (162, 1)
190.0 /	268.6 (237, 1)	195.0 (237, 1)	119.1 (237, 1)	61.7 (237, 1)	39.6 (237, 1)
180.0 /	302.2 (362, 1)	217.6 (338, 1)	136.1 (338, 1)	72.0 (338, 1)	46.6 (338, 1)
170.0 /	154.3 (316, 1)	109.5 (316, 1)	66.0 (316, 1)	33.4 (316, 1)	20.9 (316, 1)
160.0 /	414.4 (61, 1)	308.2 (61, 1)	194.0 (61, 1)	103.7 (61, 1)	67.7 (61, 1)
150.0 /	96.1 (32, 1)	67.8 (74, 1)	41.0 (268, 1)	22.4 (268, 1)	14.7 (268, 1)
140.0 /	73.3 (360, 1)	52.9 (165, 1)	33.0 (165, 1)	16.8 (365, 1)	10.1 (365, 1)
130.0 /	106.1 (293, 1)	78.0 (293, 1)	48.7 (293, 1)	25.7 (293, 1)	16.6 (293, 1)
120.0 /	137.7 (16, 1)	100.0 (16, 1)	61.7 (16, 1)	31.9 (16, 1)	20.3 (16, 1)
110.0 /	285.3 (134, 1)	210.7 (134, 1)	131.8 (134, 1)	69.5 (134, 1)	45.0 (134, 1)
100.0 /	198.2 (6, 1)	137.8 (312, 1)	85.6 (312, 1)	45.0 (312, 1)	29.0 (312, 1)
90.0 /	380.4 (191, 1)	279.1 (191, 1)	173.1 (191, 1)	90.6 (191, 1)	58.4 (191, 1)
80.0 /	531.3 (190, 1)	384.7 (190, 1)	233.3 (190, 1)	119.5 (190, 1)	75.9 (190, 1)
70.0 /	96.6 (299, 1)	68.5 (164, 1)	36.7 (299, 1)	16.8 (299, 1)	10.7 (160, 1)
60.0 /	306.7 (231, 1)	219.3 (231, 1)	131.4 (231, 1)	66.3 (231, 1)	41.7 (231, 1)
50.0 /	336.9 (191, 1)	243.9 (191, 1)	148.4 (191, 1)	76.4 (191, 1)	48.8 (191, 1)
40.0 /	571.7 (168, 1)	411.5 (168, 1)	248.2 (168, 1)	126.0 (168, 1)	79.7 (168, 1)
30.0 /	110.4 (181, 1)	81.5 (146, 1)	51.3 (146, 1)	27.1 (146, 1)	17.4 (146, 1)
20.0 /	266.2 (181, 1)	187.7 (181, 1)	109.2 (181, 1)	52.9 (181, 1)	32.4 (181, 1)
10.0 /	345.5 (149, 1)	254.1 (149, 1)	158.5 (149, 1)	83.7 (149, 1)	54.1 (149, 1)

2ND HIGH
24-HR
SGROUP# 1
YEAR 1977
*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 571.7 AND OCCURRED AT (150.0, 40.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	23.3 (167, 1)	8.7 (167, 1)	4.1 (167, 1)
350.0 /	15.0 (249, 1)	5.4 (249, 1)	2.5 (249, 1)
340.0 /	13.9 (209, 1)	5.3 (209, 1)	2.7 (209, 1)
330.0 /	14.9 (173, 1)	5.2 (173, 1)	2.3 (173, 1)
320.0 /	12.2 (270, 1)	4.3 (270, 1)	2.0 (270, 1)
310.0 /	13.6 (121, 1)	4.6 (307, 1)	2.0 (307, 1)
300.0 /	20.4 (313, 1)	7.4 (313, 1)	3.4 (313, 1)
290.0 /	9.8 (343, 1)	3.6 (343, 1)	1.6 (343, 1)
280.0 /	21.2 (228, 1)	7.6 (228, 1)	3.4 (228, 1)
270.0 /	20.2 (260, 1)	7.3 (260, 1)	3.3 (260, 1)
260.0 /	15.5 (150, 1)	5.6 (150, 1)	2.6 (150, 1)
250.0 /	18.2 (156, 1)	6.6 (156, 1)	3.0 (156, 1)
240.0 /	15.8 (256, 1)	5.9 (256, 1)	2.8 (256, 1)
230.0 /	17.1 (313, 1)	6.2 (267, 1)	2.8 (267, 1)
220.0 /	13.0 (224, 1)	4.8 (53, 1)	2.2 (53, 1)
210.0 /	14.1 (8, 1)	5.0 (8, 1)	2.3 (8, 1)
200.0 /	9.2 (98, 1)	3.5 (98, 1)	1.7 (98, 1)
190.0 /	13.2 (237, 1)	4.8 (237, 1)	2.2 (237, 1)
180.0 /	15.9 (338, 1)	5.8 (338, 1)	2.7 (338, 1)
170.0 /	6.9 (316, 1)	2.5 (183, 1)	1.2 (318, 1)
160.0 /	23.4 (61, 1)	8.7 (61, 1)	4.1 (61, 1)
150.0 /	5.3 (268, 1)	2.1 (268, 1)	1.0 (268, 1)
140.0 /	3.0 (365, 1)	1.1 (79, 1)	0.5 (79, 1)
130.0 /	5.8 (293, 1)	2.2 (293, 1)	1.3 (47, 1)
120.0 /	6.8 (16, 1)	2.5 (261, 1)	1.1 (261, 1)
110.0 /	15.5 (134, 1)	5.8 (134, 1)	2.7 (134, 1)
100.0 /	9.9 (312, 1)	3.6 (312, 1)	1.7 (312, 1)
90.0 /	19.8 (191, 1)	7.2 (191, 1)	3.3 (191, 1)
80.0 /	24.8 (190, 1)	8.7 (190, 1)	3.9 (190, 1)
70.0 /	3.6 (160, 1)	1.4 (18, 1)	0.7 (18, 1)
60.0 /	13.4 (231, 1)	4.7 (231, 1)	2.1 (231, 1)
50.0 /	16.2 (191, 1)	5.8 (191, 1)	2.6 (191, 1)
40.0 /	26.0 (168, 1)	9.1 (168, 1)	4.1 (168, 1)
30.0 /	6.0 (146, 1)	2.3 (146, 1)	1.1 (146, 1)
20.0 /	9.8 (161, 1)	3.4 (293, 1)	1.6 (293, 1)
10.0 /	18.7 (149, 1)	7.0 (149, 1)	3.2 (302, 1)

MAX 50
24-HR
SGROUP# 1
YEAR 1977
*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

* 50 MAXIMUM 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM ALL SOURCES *

RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)	RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)
1	884.50488	1	257	150.0	260.0	26	433.64892	1	120	200.0	360.0
2	795.82080	1	119	150.0	40.0	27	432.98291	1	266	150.0	360.0
3	744.20300	1	327	150.0	300.0	28	432.95447	1	361	150.0	190.0
4	738.42810	1	27	150.0	330.0	29	430.10931	1	260	150.0	270.0
5	663.46277	1	353	150.0	90.0	30	424.10242	1	228	150.0	280.0
6	654.30090	1	257	200.0	260.0	31	421.08636	1	187	150.0	180.0
7	601.21204	1	311	150.0	50.0	32	419.92499	1	302	150.0	10.0
8	600.11145	1	120	150.0	360.0	33	414.35705	1	61	150.0	160.0
9	589.49560	1	119	200.0	40.0	34	411.47632	1	168	200.0	40.0
10	571.73291	1	168	150.0	40.0	35	408.99945	1	257	300.0	260.0
11	563.13318	1	118	150.0	80.0	36	407.70654	1	263	200.0	240.0
12	561.80359	1	24	150.0	220.0	37	407.24603	1	118	200.0	80.0
13	551.47595	1	327	200.0	300.0	38	405.17761	1	24	200.0	220.0
14	546.63049	1	263	150.0	240.0	39	403.30249	1	167	150.0	360.0
15	543.60461	1	27	200.0	330.0	40	402.09582	1	313	150.0	300.0
16	531.34949	1	190	150.0	80.0	41	402.06201	1	313	150.0	230.0
17	506.94250	1	150	150.0	160.0	42	400.76263	1	290	150.0	110.0
18	503.91431	1	238	150.0	280.0	43	384.65552	1	190	200.0	80.0
19	502.26630	1	354	150.0	360.0	44	384.52533	1	354	150.0	340.0
20	492.03650	1	247	150.0	250.0	45	380.42786	1	191	150.0	90.0
21	490.77411	1	353	200.0	90.0	46	373.51977	1	150	200.0	160.0
22	489.88012	1	140	150.0	270.0	47	372.41009	1	74	150.0	320.0
23	468.22406	1	108	150.0	270.0	48	368.78735	1	119	300.0	40.0
24	443.74756	1	311	200.0	50.0	49	366.01361	1	238	200.0	280.0
25	440.74585	1	182	150.0	230.0	50	365.78491	1	190	150.0	280.0

*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	600.1	433.6	262.6	134.2	85.3
350.0 /	305.6	221.3	135.6	72.1	46.5
340.0 /	384.5	281.2	173.6	90.8	58.3
330.0 /	736.4	543.6	336.6	176.6	114.0
320.0 /	372.4	263.3	155.0	76.9	47.9
310.0 /	365.3	256.0	149.7	72.6	44.8
300.0 /	744.2	551.5	345.0	183.5	119.5
290.0 /	323.1	226.2	131.9	64.6	40.0
280.0 /	503.9	366.0	222.8	114.6	73.0
270.0 /	489.9	341.8	208.9	108.1	69.1
260.0 /	884.5	654.3	409.0	217.2	141.1
250.0 /	492.0	351.6	209.5	105.2	66.2
240.0 /	548.6	407.7	256.1	136.5	88.9
230.0 /	440.7	323.0	199.5	104.1	67.1
220.0 /	561.8	405.2	244.4	124.5	78.7
210.0 /	335.9	238.1	141.7	73.1	46.8
200.0 /	357.5	254.8	152.1	76.5	48.1
190.0 /	433.0	320.1	200.2	106.4	69.2
180.0 /	421.1	307.7	189.2	98.7	63.5
170.0 /	259.8	187.6	114.4	58.1	36.6
160.0 /	506.9	373.5	231.9	122.1	78.9
150.0 /	99.7	68.0	43.3	23.3	15.2
140.0 /	93.2	63.6	36.2	17.4	11.1
130.0 /	162.5	120.4	75.4	40.1	26.1
120.0 /	174.1	124.2	74.1	36.8	23.0
110.0 /	400.8	296.0	184.6	97.6	63.3
100.0 /	286.1	206.0	127.4	65.8	41.9
90.0 /	663.5	490.8	306.9	163.4	106.4
80.0 /	563.1	407.2	247.3	127.1	81.1
70.0 /	107.6	69.2	42.5	22.1	14.1
60.0 /	328.1	233.0	139.4	70.5	44.6
50.0 /	601.2	443.7	276.7	146.3	94.8
40.0 /	795.8	589.5	368.8	195.6	127.2
30.0 /	119.4	89.1	56.1	30.1	19.6
20.0 /	278.8	199.0	118.9	60.2	38.1
10.0 /	419.9	303.4	184.0	94.7	60.4

*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	27.8	9.7	4.4
350.0 /	15.9	5.9	2.8
340.0 /	19.6	7.1	3.3
330.0 /	38.4	13.8	6.3
320.0 /	15.0	5.1	2.2
310.0 /	13.9	4.7	2.1
300.0 /	41.1	15.1	7.0
290.0 /	12.5	4.2	1.9
280.0 /	24.0	8.4	3.8
270.0 /	23.0	8.2	3.7
260.0 /	48.5	18.0	8.4
250.0 /	21.1	7.2	3.2
240.0 /	30.7	11.3	5.3
230.0 /	22.6	8.2	3.8
220.0 /	25.4	8.8	3.9
210.0 /	15.6	5.6	2.6
200.0 /	15.6	5.5	2.5
190.0 /	23.8	8.8	4.1
180.0 /	21.3	7.7	3.6
170.0 /	12.0	4.3	2.0
160.0 /	26.8	9.7	4.5
150.0 /	5.4	2.1	1.0
140.0 /	3.8	1.4	0.7
130.0 /	9.0	3.3	1.5
120.0 /	7.3	2.5	1.2
110.0 /	21.5	7.8	3.6
100.0 /	13.9	5.0	2.3
90.0 /	36.8	13.7	6.4
80.0 /	26.8	9.5	4.3
70.0 /	4.6	1.7	0.8
60.0 /	14.7	5.3	2.5
50.0 /	32.5	11.9	5.6
40.0 /	43.7	16.1	7.5
30.0 /	6.8	2.5	1.2
20.0 /	12.4	4.3	1.9
10.0 /	20.0	7.1	3.3

*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	502.3	360.2	217.5	110.4	69.8
350.0 /	292.3	216.0	135.0	69.9	44.8
340.0 /	329.3	231.8	136.8	66.4	41.1
330.0 /	333.2	239.2	144.0	72.8	46.0
320.0 /	267.2	188.9	114.5	58.5	37.1
310.0 /	349.0	243.4	141.8	69.4	43.0
300.0 /	402.1	293.3	180.3	94.0	60.4
290.0 /	184.8	136.3	84.9	44.8	28.9
280.0 /	424.1	310.0	190.7	99.1	63.4
270.0 /	468.2	341.1	198.8	97.1	61.3
260.0 /	295.4	217.6	135.2	71.0	45.8
250.0 /	346.3	255.1	158.3	83.3	53.8
240.0 /	301.7	214.9	129.9	69.2	45.3
230.0 /	402.1	285.8	170.0	84.7	52.9
220.0 /	286.8	205.1	123.7	62.6	39.5
210.0 /	319.6	232.0	141.2	70.6	44.1
200.0 /	176.8	129.7	80.3	42.2	27.1
190.0 /	268.6	195.0	119.1	61.7	39.6
180.0 /	302.2	217.6	136.1	72.0	46.6
170.0 /	154.3	109.5	66.0	33.4	20.9
160.0 /	414.4	308.2	194.0	103.7	67.3
150.0 /	96.1	67.8	41.0	22.4	14.7
140.0 /	73.3	52.9	33.0	16.8	10.1
130.0 /	106.1	78.0	48.7	25.7	16.6
120.0 /	157.7	100.0	61.7	31.9	20.3
110.0 /	285.3	210.7	131.8	69.5	45.0
100.0 /	196.2	137.8	85.6	45.0	29.0
90.0 /	380.4	279.1	173.1	90.6	58.4
80.0 /	531.3	384.7	233.3	119.5	75.9
70.0 /	96.6	68.5	36.7	16.8	10.7
60.0 /	306.7	219.3	131.4	66.3	41.7
50.0 /	336.9	243.9	148.4	76.4	48.8
40.0 /	571.7	411.5	248.2	126.0	79.7
30.0 /	110.4	81.5	51.3	27.1	17.4
20.0 /	268.2	187.7	109.2	52.9	32.4
10.0 /	345.5	254.1	158.5	83.7	54.1

*** 1977 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

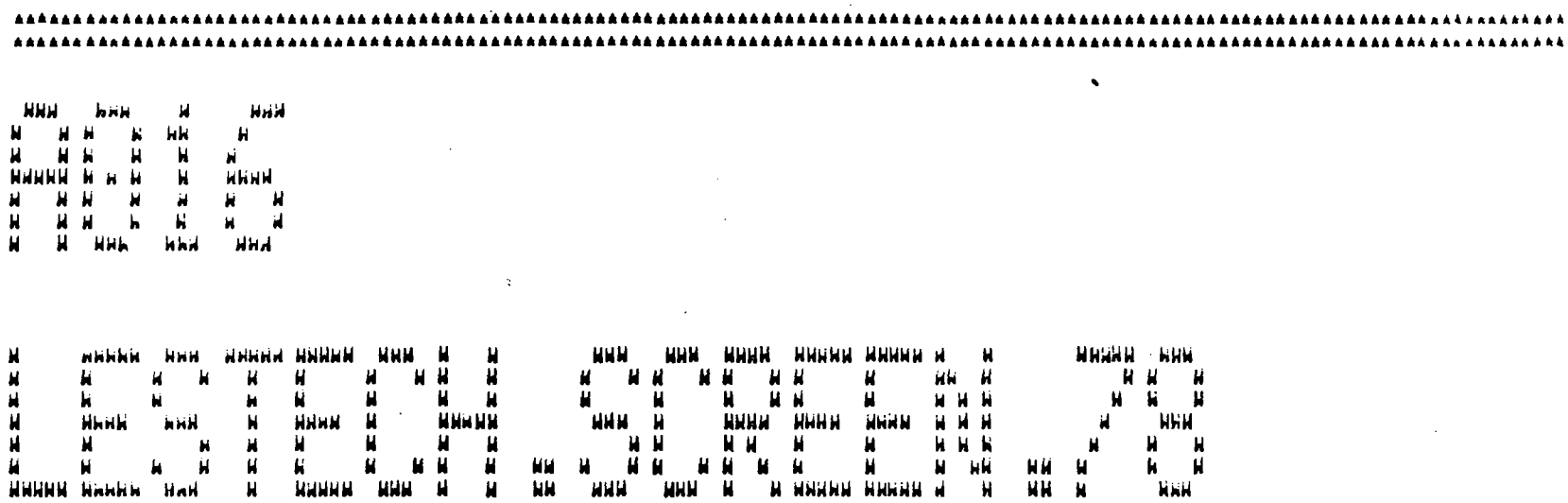
COMPOSITE SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	23.3	8.7	4.1
350.0 /	15.0	5.4	2.5
340.0 /	13.9	5.3	2.7
330.0 /	14.9	5.2	2.3
320.0 /	12.2	4.3	2.0
310.0 /	13.6	4.6	2.0
300.0 /	20.4	7.4	3.4
290.0 /	9.8	3.6	1.6
280.0 /	21.2	7.6	3.4
270.0 /	20.2	7.3	3.3
260.0 /	15.5	5.6	2.6
250.0 /	18.2	6.6	3.0
240.0 /	15.8	5.9	2.8
230.0 /	17.1	6.2	2.8
220.0 /	13.0	4.8	2.2
210.0 /	14.1	5.0	2.3
200.0 /	9.2	3.5	1.7
190.0 /	13.2	4.8	2.2
180.0 /	15.9	5.8	2.7
170.0 /	6.9	2.5	1.2
160.0 /	23.4	8.7	4.1
150.0 /	5.3	2.1	1.0
140.0 /	3.0	1.1	0.5
130.0 /	5.8	2.2	1.3
120.0 /	6.8	2.5	1.1
110.0 /	15.5	5.8	2.7
100.0 /	9.9	3.6	1.7
90.0 /	19.8	7.2	3.3
80.0 /	24.8	8.7	3.9
70.0 /	3.6	1.4	0.7
60.0 /	13.4	4.7	2.1
50.0 /	16.2	5.8	2.6
40.0 /	26.0	9.1	4.1
30.0 /	6.0	2.3	1.1
20.0 /	9.8	3.4	1.6
10.0 /	16.7	7.0	3.2

USER: AU16 -AT

<ESEACT>AU16>LESTECH.SCREEN.78



LABEL: PRTU16 -FORM PR1

PATHNAME: <ESEACT>AU16>LESTECH.SCREEN.78
FILE LAST MODIFIED: 86-11-11.12:03:12.TUE

SPOOLED: 86-11-11.12:07:12.TUE [SPOOLER REV 19.4.5]
STARTED: 86-11-11.12:11:08.TUE ON: PR1 BY: PR1

*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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) =	0
4-HOUR (YES=1,NO=0)	ISW(10) =	0
6-HOUR (YES=1,NO=0)	ISW(11) =	0
8-HOUR (YES=1,NO=0)	ISW(12) =	0
12-HOUR (YES=1,NO=0)	ISW(13) =	0
24-HOUR (YES=1,NO=0)	ISW(14) =	1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) =	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) =	1
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 =	8
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 = 7.10	METERS	
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET =	9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION DECAY = 0.00000E+00		
SURFACE STATION NO.	ISS =	12815
YEAR OF SURFACE DATA	ISY =	76
UPPER AIR STATION NO.	IUS =	12842
YEAR OF UPPER AIR DATA	IUY =	76
ALLOCATED DATA STORAGE	LIMIT =	43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT =	2979 WORDS

*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

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1111111111 1111111111 1111111111 1111111111 1111111111
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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

*** 1978 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

150., 200., 300., 500., 700., 1500., 3000., 5000.,

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

(DEGREES)

10., 20., 30., 40., 50., 60., 70., 80., 90., 100.,
110., 120., 130., 140., 150., 160., 170., 180., 190., 200.,
210., 220., 230., 240., 250., 260., 270., 280., 290., 300.,
310., 320., 330., 340., 350., 360.,

*** 1978 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

SOURCE # 1---BELT-TO-HOPPER, VOLUME SOURCE, 5X5X19.4
SOURCE # 2---HOPPER-TO-RAILCAR, VOLUME SOURCE,3X12X5.

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	AK	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	1	0	10	0.610	0.	0.	0.0	9.68	9.0	1.20	0.00	0.0	0.0	0.0
2	1	0	10	0.160	0.	0.	0.0	2.74	2.6	1.40	0.00	0.0	0.0	0.0

*** 1978 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

*** SOURCE PARTICULATE DATA ***

*** SOURCE NUMBER = 1 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.60000,

*** SOURCE NUMBER = 2 ***

MASS FRACTION =
0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,0.10000,

SETTLING VELOCITY(METERS/SEC) =
0.0001, 0.0004, 0.0009, 0.0015, 0.0023, 0.0042, 0.0069, 0.0120, 0.0241, 0.0800,

SURFACE REFLECTION COEFFICIENT =
1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,0.95000,0.90000,0.60000,

*N°-DAY
365 DAYS
SGROUP# 1
YEAR 1978
*** 1978 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 33.3 AND OCCURRED AT (150.0, 250.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0	1500.0	3000.0	5000.0
360.0 /	20.3	14.1	8.2	4.0	2.5	0.8	0.3	0.1
350.0 /	27.8	19.4	11.4	5.6	3.5	1.1	0.4	0.2
340.0 /	31.3	21.9	12.8	6.3	3.9	1.3	0.4	0.2
330.0 /	26.0	19.4	11.3	5.5	3.4	1.1	0.4	0.2
320.0 /	23.5	16.2	9.4	4.6	2.8	0.9	0.3	0.1
310.0 /	26.3	18.1	10.5	5.0	3.1	1.0	0.3	0.1
300.0 /	33.0	23.0	13.5	6.6	4.1	1.3	0.4	0.2
290.0 /	19.5	13.4	7.7	3.7	2.2	0.7	0.2	0.1
280.0 /	22.9	15.9	9.2	4.4	2.7	0.9	0.3	0.1
270.0 /	32.7	22.8	13.3	6.5	4.0	1.3	0.4	0.2
260.0 /	29.8	20.7	12.1	5.9	3.6	1.1	0.4	0.2
250.0 /	33.3	23.3	13.7	6.8	4.2	1.3	0.5	0.2
240.0 /	29.6	20.7	12.1	6.0	3.7	1.2	0.4	0.2
230.0 /	28.2	19.6	11.4	5.6	3.4	1.1	0.4	0.2
220.0 /	23.8	16.6	9.7	4.7	2.9	0.9	0.3	0.1
210.0 /	22.0	15.3	8.9	4.4	2.7	0.9	0.3	0.1
200.0 /	18.6	12.9	7.6	3.7	2.3	0.7	0.3	0.1
190.0 /	14.9	10.2	5.8	2.8	1.7	0.5	0.2	0.1
180.0 /	28.7	20.2	11.9	5.9	3.7	1.2	0.4	0.2
170.0 /	18.6	13.1	7.7	3.8	2.3	0.7	0.3	0.1
160.0 /	10.5	7.3	4.2	2.0	1.2	0.4	0.1	0.1
150.0 /	7.9	5.4	3.1	1.5	0.9	0.3	0.1	0.0
140.0 /	7.1	4.9	2.8	1.3	0.8	0.2	0.1	0.0
130.0 /	6.2	4.2	2.4	1.1	0.7	0.2	0.1	0.0
120.0 /	7.8	5.3	3.0	1.4	0.9	0.3	0.1	0.0
110.0 /	8.0	5.6	3.2	1.6	1.0	0.3	0.1	0.0
100.0 /	7.4	5.2	3.0	1.5	0.9	0.3	0.1	0.0
90.0 /	7.5	5.2	3.0	1.5	0.9	0.3	0.1	0.0
80.0 /	8.3	5.6	3.4	1.7	1.0	0.3	0.1	0.1
70.0 /	5.7	3.9	2.2	1.1	0.6	0.2	0.1	0.0
60.0 /	9.4	6.6	3.8	1.9	1.2	0.4	0.1	0.1
50.0 /	10.8	7.4	4.3	2.1	1.3	0.4	0.1	0.1
40.0 /	15.7	11.0	6.5	3.2	2.0	0.6	0.2	0.1
30.0 /	7.3	4.9	2.8	1.3	0.8	0.2	0.1	0.0
20.0 /	7.8	5.3	3.1	1.4	0.9	0.3	0.1	0.0
10.0 /	10.2	6.9	3.9	1.8	1.1	0.3	0.1	0.1

HIGH
24-HR
SGROUP# 1
YEAR 1976
*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 892.9 AND OCCURRED AT (150.0, 80.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	524.4 (157, 1)	384.0 (157, 1)	237.7 (157, 1)	124.9 (157, 1)	80.8 (157, 1)
350.0 /	766.6 (59, 1)	556.7 (59, 1)	340.1 (59, 1)	175.6 (59, 1)	112.4 (59, 1)
340.0 /	582.3 (187, 1)	420.5 (187, 1)	255.2 (187, 1)	130.6 (187, 1)	83.2 (187, 1)
330.0 /	601.9 (211, 1)	423.6 (211, 1)	248.4 (211, 1)	127.7 (246, 1)	82.8 (246, 1)
320.0 /	435.2 (7, 1)	311.2 (7, 1)	186.6 (7, 1)	94.8 (7, 1)	60.1 (7, 1)
310.0 /	485.0 (153, 1)	354.7 (153, 1)	218.8 (153, 1)	114.4 (153, 1)	73.7 (153, 1)
300.0 /	777.1 (94, 1)	561.4 (94, 1)	340.1 (94, 1)	173.7 (94, 1)	112.3 (242, 1)
290.0 /	561.7 (151, 1)	398.1 (151, 1)	235.2 (151, 1)	116.8 (151, 1)	72.9 (151, 1)
280.0 /	497.6 (84, 1)	359.8 (84, 1)	218.9 (84, 1)	111.7 (84, 1)	70.7 (84, 1)
270.0 /	630.6 (150, 1)	456.5 (150, 1)	277.3 (150, 1)	142.5 (150, 1)	91.0 (150, 1)
260.0 /	393.8 (203, 1)	287.7 (203, 1)	177.9 (203, 1)	92.8 (203, 1)	59.5 (203, 1)
250.0 /	869.2 (311, 1)	644.9 (311, 1)	404.0 (311, 1)	214.6 (311, 1)	139.9 (311, 1)
240.0 /	686.7 (264, 1)	494.4 (264, 1)	296.8 (264, 1)	150.1 (264, 1)	94.5 (264, 1)
230.0 /	413.3 (327, 1)	293.5 (327, 1)	173.7 (327, 1)	86.6 (327, 1)	54.2 (327, 1)
220.0 /	338.1 (164, 1)	247.2 (164, 1)	153.3 (164, 1)	80.0 (164, 1)	51.0 (164, 1)
210.0 /	387.1 (267, 1)	276.8 (267, 1)	168.8 (267, 1)	86.2 (267, 1)	54.6 (267, 1)
200.0 /	411.4 (300, 1)	293.3 (300, 1)	174.8 (300, 1)	87.5 (300, 1)	54.8 (300, 1)
190.0 /	211.8 (337, 1)	154.0 (337, 1)	97.1 (353, 1)	52.4 (353, 1)	34.3 (353, 1)
180.0 /	850.4 (238, 1)	617.1 (238, 1)	375.9 (238, 1)	193.1 (238, 1)	122.9 (238, 1)
170.0 /	730.1 (251, 1)	529.3 (251, 1)	322.9 (251, 1)	166.2 (251, 1)	106.1 (251, 1)
160.0 /	181.9 (352, 1)	130.9 (352, 1)	79.8 (352, 1)	41.0 (352, 1)	26.1 (352, 1)
150.0 /	167.6 (287, 1)	118.7 (287, 1)	70.3 (287, 1)	34.9 (287, 1)	21.8 (287, 1)
140.0 /	489.0 (243, 1)	350.1 (243, 1)	209.1 (243, 1)	105.3 (243, 1)	66.3 (243, 1)
130.0 /	169.8 (229, 1)	120.5 (229, 1)	71.0 (229, 1)	35.1 (229, 1)	21.8 (229, 1)
120.0 /	367.9 (340, 1)	254.5 (340, 1)	145.9 (340, 1)	69.6 (340, 1)	42.2 (340, 1)
110.0 /	229.6 (15, 1)	167.0 (15, 1)	102.8 (15, 1)	53.4 (15, 1)	34.2 (15, 1)
100.0 /	654.5 (215, 1)	480.1 (215, 1)	297.3 (215, 1)	155.0 (215, 1)	99.9 (215, 1)
90.0 /	121.6 (37, 1)	89.6 (37, 1)	56.3 (37, 1)	29.9 (37, 1)	19.3 (37, 1)
80.0 /	892.9 (309, 1)	659.3 (309, 1)	410.6 (309, 1)	216.7 (309, 1)	140.5 (309, 1)
70.0 /	222.6 (256, 1)	162.2 (256, 1)	99.3 (256, 1)	51.5 (256, 1)	33.0 (256, 1)
60.0 /	326.1 (287, 1)	231.7 (287, 1)	138.5 (287, 1)	68.9 (287, 1)	42.9 (287, 1)
50.0 /	608.4 (239, 1)	441.6 (239, 1)	269.7 (239, 1)	139.4 (239, 1)	89.4 (239, 1)
40.0 /	473.6 (119, 1)	348.5 (119, 1)	216.5 (119, 1)	113.9 (119, 1)	73.6 (119, 1)
30.0 /	250.9 (231, 1)	179.0 (231, 1)	106.7 (231, 1)	53.6 (231, 1)	33.8 (231, 1)
20.0 /	365.3 (193, 1)	211.5 (193, 1)	121.8 (193, 1)	57.7 (193, 1)	35.0 (193, 1)
10.0 /	153.3 (161, 1)	111.5 (161, 1)	69.0 (161, 1)	35.6 (161, 1)	22.8 (161, 1)

HIGH
24-HR
SGROUP# 1
YEAR 1978
*** 1978 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 892.9 AND OCCURRED AT (150.0, 80.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	27.6 (157, 1)	10.2 (157, 1)	4.8 (157, 1)
350.0 /	37.6 (59, 1)	13.5 (59, 1)	6.2 (59, 1)
340.0 /	27.5 (187, 1)	9.8 (187, 1)	4.4 (187, 1)
330.0 /	28.2 (246, 1)	10.3 (246, 1)	4.8 (246, 1)
320.0 /	19.6 (7, 1)	7.0 (7, 1)	3.1 (7, 1)
310.0 /	24.9 (153, 1)	9.0 (153, 1)	4.2 (153, 1)
300.0 /	38.0 (242, 1)	13.8 (242, 1)	6.3 (242, 1)
290.0 /	22.9 (151, 1)	7.8 (151, 1)	3.4 (151, 1)
280.0 /	23.3 (84, 1)	8.3 (84, 1)	3.8 (84, 1)
270.0 /	30.1 (150, 1)	10.7 (150, 1)	4.9 (150, 1)
260.0 /	20.1 (203, 1)	7.4 (203, 1)	3.4 (203, 1)
250.0 /	48.1 (311, 1)	17.7 (311, 1)	8.2 (311, 1)
240.0 /	30.5 (264, 1)	10.6 (264, 1)	4.7 (264, 1)
230.0 /	17.3 (16, 1)	6.1 (16, 1)	2.7 (16, 1)
220.0 /	17.2 (164, 1)	6.3 (164, 1)	2.9 (164, 1)
210.0 /	17.9 (267, 1)	6.4 (267, 1)	2.9 (267, 1)
200.0 /	17.4 (300, 1)	6.0 (300, 1)	2.6 (300, 1)
190.0 /	12.1 (353, 1)	4.6 (353, 1)	2.2 (353, 1)
180.0 /	40.5 (238, 1)	14.4 (238, 1)	6.5 (238, 1)
170.0 /	35.4 (251, 1)	12.7 (251, 1)	5.8 (251, 1)
160.0 /	8.6 (352, 1)	3.1 (352, 1)	1.5 (313, 1)
150.0 /	6.8 (287, 1)	2.3 (287, 1)	1.0 (297, 1)
140.0 /	21.1 (243, 1)	7.2 (243, 1)	3.2 (243, 1)
130.0 /	6.7 (229, 1)	2.2 (229, 1)	1.0 (229, 1)
120.0 /	12.7 (340, 1)	4.1 (340, 1)	1.7 (340, 1)
110.0 /	11.6 (15, 1)	4.2 (15, 1)	2.0 (15, 1)
100.0 /	34.0 (215, 1)	12.4 (215, 1)	5.8 (215, 1)
90.0 /	6.5 (37, 1)	2.4 (37, 1)	1.1 (37, 1)
80.0 /	48.0 (309, 1)	17.5 (309, 1)	8.1 (309, 1)
70.0 /	11.0 (256, 1)	4.1 (89, 1)	1.9 (89, 1)
60.0 /	13.9 (287, 1)	4.8 (287, 1)	2.2 (287, 1)
50.0 /	29.9 (239, 1)	10.7 (239, 1)	4.9 (239, 1)
40.0 /	25.2 (119, 1)	9.3 (119, 1)	4.3 (119, 1)
30.0 /	10.8 (231, 1)	3.7 (231, 1)	1.7 (231, 1)
20.0 /	10.6 (193, 1)	3.5 (193, 1)	1.6 (193, 1)
10.0 /	7.8 (161, 1)	2.9 (161, 1)	1.4 (161, 1)

2ND HIGH
24-HR
SGROUP# 1
YEAR 1978
*** 1978 METEOROLOGY - LSTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 724.4 AND OCCURRED AT (150.0, 300.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	302.0 (188, 1)	214.2 (71, 1)	131.7 (71, 1)	68.6 (71, 1)	43.9 (71, 1)
350.0 /	562.8 (99, 1)	401.5 (99, 1)	239.1 (99, 1)	119.9 (99, 1)	75.2 (99, 1)
340.0 /	504.6 (120, 1)	365.7 (120, 1)	222.5 (120, 1)	114.1 (120, 1)	72.7 (120, 1)
330.0 /	522.6 (246, 1)	386.6 (246, 1)	241.4 (246, 1)	122.0 (211, 1)	75.5 (211, 1)
320.0 /	362.7 (142, 1)	263.3 (142, 1)	160.7 (142, 1)	83.1 (142, 1)	53.1 (142, 1)
310.0 /	380.7 (274, 1)	271.3 (108, 1)	163.5 (108, 1)	83.4 (108, 1)	52.8 (108, 1)
300.0 /	724.4 (242, 1)	533.1 (242, 1)	330.3 (242, 1)	173.7 (242, 1)	110.3 (94, 1)
290.0 /	526.9 (322, 1)	368.3 (322, 1)	214.5 (322, 1)	104.5 (322, 1)	64.5 (322, 1)
280.0 /	428.7 (341, 1)	307.4 (341, 1)	185.4 (341, 1)	94.7 (341, 1)	60.2 (341, 1)
270.0 /	537.5 (79, 1)	383.4 (79, 1)	228.4 (79, 1)	114.5 (79, 1)	71.8 (79, 1)
260.0 /	364.6 (202, 1)	256.1 (202, 1)	150.2 (202, 1)	74.9 (204, 1)	47.5 (204, 1)
250.0 /	548.2 (194, 1)	398.5 (194, 1)	243.7 (194, 1)	126.3 (194, 1)	81.0 (194, 1)
240.0 /	630.5 (286, 1)	456.4 (286, 1)	277.2 (286, 1)	141.5 (286, 1)	89.8 (286, 1)
230.0 /	374.5 (16, 1)	269.6 (16, 1)	162.5 (16, 1)	83.0 (16, 1)	52.7 (16, 1)
220.0 /	250.2 (257, 1)	185.1 (257, 1)	116.1 (257, 1)	61.6 (257, 1)	39.9 (257, 1)
210.0 /	320.6 (92, 1)	227.3 (92, 1)	135.1 (95, 1)	70.4 (95, 1)	45.3 (95, 1)
200.0 /	347.6 (1, 1)	243.3 (1, 1)	142.7 (1, 1)	68.6 (1, 1)	41.7 (1, 1)
190.0 /	202.9 (353, 1)	152.4 (353, 1)	94.1 (337, 1)	48.7 (337, 1)	31.2 (337, 1)
180.0 /	517.2 (257, 1)	380.1 (257, 1)	235.6 (257, 1)	124.1 (257, 1)	80.4 (257, 1)
170.0 /	307.3 (350, 1)	221.5 (350, 1)	133.9 (350, 1)	68.2 (350, 1)	43.2 (350, 1)
160.0 /	176.9 (269, 1)	127.8 (269, 1)	77.5 (269, 1)	39.5 (269, 1)	24.9 (269, 1)
150.0 /	141.0 (360, 1)	101.0 (360, 1)	61.0 (360, 1)	30.7 (360, 1)	19.1 (360, 1)
140.0 /	137.1 (250, 1)	95.8 (250, 1)	55.9 (250, 1)	27.0 (250, 1)	16.5 (250, 1)
130.0 /	107.1 (89, 1)	76.6 (89, 1)	46.4 (89, 1)	23.7 (89, 1)	15.0 (89, 1)
120.0 /	119.8 (308, 1)	86.2 (308, 1)	52.6 (308, 1)	27.0 (306, 1)	17.1 (308, 1)
110.0 /	149.8 (230, 1)	110.7 (230, 1)	69.2 (230, 1)	36.8 (230, 1)	23.9 (230, 1)
100.0 /	124.5 (279, 1)	87.3 (279, 1)	51.5 (279, 1)	25.5 (328, 1)	16.0 (328, 1)
90.0 /	118.5 (51, 1)	82.4 (51, 1)	48.0 (51, 1)	25.4 (21, 1)	16.5 (21, 1)
80.0 /	315.3 (232, 1)	226.4 (232, 1)	136.0 (232, 1)	69.1 (232, 1)	43.7 (232, 1)
70.0 /	181.7 (89, 1)	136.4 (89, 1)	87.0 (89, 1)	47.1 (89, 1)	30.9 (89, 1)
60.0 /	227.1 (333, 1)	163.0 (333, 1)	97.8 (333, 1)	49.2 (333, 1)	30.8 (333, 1)
50.0 /	284.2 (222, 1)	210.8 (222, 1)	132.1 (222, 1)	70.0 (222, 1)	45.5 (222, 1)
40.0 /	467.0 (118, 1)	338.5 (118, 1)	206.5 (118, 1)	106.9 (118, 1)	68.4 (118, 1)
30.0 /	164.5 (328, 1)	119.9 (328, 1)	74.0 (328, 1)	38.6 (328, 1)	24.8 (328, 1)
20.0 /	154.3 (183, 1)	114.0 (183, 1)	71.3 (183, 1)	37.7 (183, 1)	24.5 (183, 1)
10.0 /	123.1 (286, 1)	87.7 (286, 1)	54.6 (232, 1)	29.2 (232, 1)	19.1 (232, 1)

2ND HIGH
24-HR
SGROUP# 1
YEAR 1976
*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

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

* MAXIMUM VALUE EQUALS 724.4 AND OCCURRED AT (150.0, 300.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	14.7 (71, 1)	5.4 (71, 1)	2.5 (71, 1)
350.0 /	23.8 (99, 1)	8.1 (99, 1)	3.6 (99, 1)
340.0 /	24.0 (165, 1)	8.8 (165, 1)	4.1 (165, 1)
330.0 /	23.4 (211, 1)	7.8 (211, 1)	3.4 (211, 1)
320.0 /	17.6 (142, 1)	6.3 (142, 1)	2.8 (142, 1)
310.0 /	17.1 (108, 1)	6.0 (108, 1)	2.7 (108, 1)
300.0 /	36.0 (94, 1)	12.6 (94, 1)	5.6 (94, 1)
290.0 /	20.2 (322, 1)	6.9 (322, 1)	3.1 (245, 1)
280.0 /	20.0 (341, 1)	7.2 (341, 1)	3.3 (341, 1)
270.0 /	22.8 (79, 1)	7.8 (79, 1)	3.4 (144, 1)
260.0 /	15.7 (204, 1)	5.7 (204, 1)	2.6 (204, 1)
250.0 /	27.0 (194, 1)	9.7 (194, 1)	4.4 (194, 1)
240.0 /	29.4 (286, 1)	10.3 (286, 1)	4.6 (286, 1)
230.0 /	17.1 (327, 1)	5.8 (327, 1)	2.5 (327, 1)
220.0 /	13.8 (257, 1)	5.1 (257, 1)	2.4 (257, 1)
210.0 /	15.4 (95, 1)	5.7 (95, 1)	2.6 (95, 1)
200.0 /	13.3 (1, 1)	4.8 (233, 1)	2.2 (233, 1)
190.0 /	10.4 (337, 1)	3.7 (337, 1)	1.7 (337, 1)
180.0 /	27.5 (257, 1)	10.1 (257, 1)	4.7 (257, 1)
170.0 /	14.1 (350, 1)	5.2 (293, 1)	2.5 (293, 1)
160.0 /	8.2 (313, 1)	3.1 (313, 1)	1.4 (352, 1)
150.0 /	6.2 (360, 1)	2.2 (297, 1)	1.0 (287, 1)
140.0 /	5.1 (250, 1)	1.7 (250, 1)	0.8 (254, 1)
130.0 /	5.1 (89, 1)	1.9 (89, 1)	0.9 (89, 1)
120.0 /	5.5 (308, 1)	2.0 (308, 1)	0.9 (308, 1)
110.0 /	8.3 (230, 1)	3.1 (230, 1)	1.4 (230, 1)
100.0 /	5.3 (328, 1)	1.9 (328, 1)	0.9 (328, 1)
90.0 /	5.8 (21, 1)	2.2 (21, 1)	1.1 (21, 1)
80.0 /	14.1 (232, 1)	4.9 (232, 1)	2.2 (232, 1)
70.0 /	10.8 (89, 1)	3.9 (256, 1)	1.8 (256, 1)
60.0 /	9.8 (333, 1)	3.5 (350, 1)	1.6 (350, 1)
50.0 /	15.6 (222, 1)	5.7 (222, 1)	2.6 (222, 1)
40.0 /	22.8 (118, 1)	8.2 (118, 1)	3.7 (118, 1)
30.0 /	8.3 (328, 1)	3.0 (328, 1)	1.4 (328, 1)
20.0 /	8.4 (183, 1)	3.1 (183, 1)	1.4 (183, 1)
10.0 /	6.6 (232, 1)	2.4 (232, 1)	1.1 (232, 1)

MAX 50
24-HR
SGROUP# 1
YEAR 1976
*** 1976 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

* 50 MAXIMUM 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM ALL SOURCES *

RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)	RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y(METERS) OR DIRECTION (DEGREES)
1	892.94043	1	309	150.0	80.0	26	529.32312	1	251	200.0	170.0
2	869.16101	1	311	150.0	250.0	27	526.87268	1	322	150.0	290.0
3	850.43298	1	238	150.0	180.0	28	524.36536	1	157	150.0	360.0
4	777.10925	1	94	150.0	300.0	29	522.64184	1	246	150.0	330.0
5	766.63464	1	59	150.0	350.0	30	517.24792	1	257	150.0	180.0
6	730.07361	1	251	150.0	170.0	31	504.55188	1	120	150.0	340.0
7	724.43164	1	242	150.0	300.0	32	497.57349	1	84	150.0	280.0
8	688.74927	1	264	150.0	240.0	33	494.39661	1	264	200.0	240.0
9	659.31189	1	309	200.0	80.0	34	488.99798	1	243	150.0	140.0
10	654.46631	1	215	150.0	100.0	35	484.99945	1	153	150.0	310.0
11	645.83008	1	228	150.0	300.0	36	484.58142	1	146	150.0	250.0
12	644.69307	1	311	200.0	250.0	37	480.13733	1	215	200.0	100.0
13	630.61340	1	150	150.0	270.0	38	473.59851	1	119	150.0	40.0
14	630.51782	1	286	150.0	240.0	39	467.60986	1	332	150.0	350.0
15	617.12390	1	238	200.0	180.0	40	466.96399	1	118	150.0	40.0
16	608.36914	1	239	150.0	50.0	41	464.03760	1	228	200.0	300.0
17	601.93420	1	211	150.0	330.0	42	460.57703	1	144	150.0	270.0
18	582.33948	1	187	150.0	340.0	43	456.46631	1	150	200.0	270.0
19	562.82519	1	99	150.0	350.0	44	456.38220	1	286	200.0	240.0
20	561.73108	1	151	150.0	290.0	45	456.13904	1	165	150.0	340.0
21	561.44885	1	94	200.0	300.0	46	453.13672	1	196	150.0	340.0
22	556.66077	1	59	200.0	350.0	47	451.30341	1	91	150.0	250.0
23	548.15491	1	194	150.0	250.0	48	441.58148	1	239	200.0	50.0
24	537.54773	1	79	150.0	270.0	49	437.64960	1	206	150.0	300.0
25	533.11316	1	242	200.0	300.0	50	435.21460	1	7	150.0	320.0

*** 1978 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	524.4	384.0	237.7	124.9	80.8
350.0 /	766.6	556.7	340.1	175.6	112.4
340.0 /	582.3	420.5	255.2	130.6	83.2
330.0 /	601.9	423.6	248.4	127.7	82.8
320.0 /	435.2	311.2	186.6	94.8	60.1
310.0 /	485.0	354.7	218.8	114.4	73.7
300.0 /	777.1	561.4	340.1	173.7	112.3
290.0 /	561.7	398.1	235.2	116.8	72.9
280.0 /	497.6	359.8	218.9	111.7	70.7
270.0 /	630.6	456.5	277.3	142.5	91.0
260.0 /	393.8	287.7	177.9	92.8	59.5
250.0 /	869.2	644.9	404.0	214.8	139.9
240.0 /	688.7	494.4	296.8	150.1	94.5
230.0 /	413.3	293.5	173.7	86.6	54.2
220.0 /	338.1	247.2	153.3	80.0	51.0
210.0 /	387.1	278.8	168.8	86.2	54.6
200.0 /	411.4	293.3	174.8	87.5	54.8
190.0 /	211.8	154.0	97.1	52.4	34.3
180.0 /	850.4	617.1	375.9	193.1	122.9
170.0 /	730.1	529.3	322.9	166.2	106.1
160.0 /	181.9	130.9	79.8	41.0	26.1
150.0 /	167.6	118.7	70.3	34.9	21.8
140.0 /	489.0	350.1	209.1	105.3	66.3
130.0 /	169.8	120.5	71.0	35.1	21.8
120.0 /	367.9	254.5	145.9	69.6	42.2
110.0 /	229.6	167.0	102.8	53.4	34.2
100.0 /	654.5	480.1	297.3	155.0	99.9
90.0 /	121.6	89.6	56.3	29.9	19.3
80.0 /	892.9	659.3	410.6	216.7	140.5
70.0 /	222.6	162.2	99.3	51.5	33.0
60.0 /	326.1	231.7	138.5	68.9	42.9
50.0 /	606.4	441.6	269.7	139.4	89.4
40.0 /	473.6	348.5	216.5	113.9	73.6
30.0 /	250.9	179.0	106.7	53.6	33.8
20.0 /	305.3	211.5	121.8	57.7	35.0
10.0 /	153.3	111.5	69.0	35.6	22.8

*** 1978 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	27.6	10.2	4.8
350.0 /	37.6	13.5	6.2
340.0 /	27.5	9.8	4.4
330.0 /	28.2	10.3	4.8
320.0 /	19.6	7.0	3.1
310.0 /	24.9	9.0	4.2
300.0 /	38.0	13.8	6.3
290.0 /	22.9	7.8	3.4
280.0 /	23.3	8.3	3.8
270.0 /	30.1	10.7	4.9
260.0 /	20.1	7.4	3.4
250.0 /	48.1	17.7	8.2
240.0 /	30.5	10.6	4.7
230.0 /	17.3	6.1	2.7
220.0 /	17.2	6.3	2.9
210.0 /	17.9	6.4	2.9
200.0 /	17.4	6.0	2.6
190.0 /	12.1	4.6	2.2
180.0 /	40.5	14.4	6.5
170.0 /	35.4	12.7	5.8
160.0 /	6.6	3.1	1.5
150.0 /	6.8	2.3	1.0
140.0 /	21.1	7.2	3.2
130.0 /	6.7	2.2	1.0
120.0 /	12.7	4.1	1.7
110.0 /	11.6	4.2	2.0
100.0 /	34.0	12.4	5.8
90.0 /	6.5	2.4	1.1
80.0 /	48.0	17.5	8.1
70.0 /	11.0	4.1	1.9
60.0 /	13.9	4.8	2.2
50.0 /	29.9	10.7	4.9
40.0 /	25.2	9.3	4.3
30.0 /	10.8	3.7	1.7
20.0 /	10.6	3.5	1.6
10.0 /	7.8	2.9	1.4

*** 1978 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 150.0	200.0	300.0	500.0	700.0
360.0 /	302.0	214.2	131.7	68.6	43.9
350.0 /	562.8	401.5	239.1	119.9	75.2
340.0 /	504.6	365.7	222.5	114.1	72.7
330.0 /	522.6	386.6	241.4	122.0	75.5
320.0 /	362.7	263.3	160.7	83.1	53.1
310.0 /	380.7	271.3	163.5	83.4	52.8
300.0 /	724.4	533.1	330.3	173.7	110.3
290.0 /	526.9	368.3	214.5	104.5	64.5
280.0 /	428.7	307.4	185.4	94.7	60.2
270.0 /	537.5	383.4	228.4	114.5	71.8
260.0 /	364.6	256.1	150.2	74.9	47.5
250.0 /	548.2	398.5	243.7	126.3	81.0
240.0 /	630.5	456.4	277.2	141.5	89.8
230.0 /	374.5	269.6	162.5	83.0	52.7
220.0 /	250.2	185.1	116.1	61.6	39.9
210.0 /	320.8	227.3	135.1	70.4	45.3
200.0 /	347.6	243.3	142.7	68.6	41.7
190.0 /	202.9	152.4	94.1	48.7	31.2
180.0 /	517.2	380.1	235.6	124.1	80.4
170.0 /	307.3	221.5	133.9	68.2	43.2
160.0 /	176.9	127.8	77.5	39.5	24.9
150.0 /	141.0	101.0	61.0	30.7	19.1
140.0 /	137.1	95.8	55.9	27.0	16.5
130.0 /	107.1	76.6	46.4	23.7	15.0
120.0 /	119.8	86.2	52.6	27.0	17.1
110.0 /	149.8	110.7	69.2	36.8	23.9
100.0 /	124.5	87.3	51.5	25.5	16.0
90.0 /	118.5	82.4	48.0	25.4	16.5
80.0 /	315.3	226.4	136.0	69.1	43.7
70.0 /	181.7	136.4	87.0	47.1	30.9
60.0 /	227.1	163.0	97.8	49.2	30.8
50.0 /	284.2	210.8	132.1	70.6	45.5
40.0 /	467.0	338.5	206.5	106.9	68.4
30.0 /	164.5	119.9	74.0	38.6	24.8
20.0 /	154.3	114.0	71.3	37.7	24.5
10.0 /	123.1	87.7	54.6	29.2	19.1

*** 1978 METEOROLOGY - ESTECH PHOSPHATE ROCK LOADING, BARTOW, FLORIDA ***

COMPOSITE SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE, UG/CU.M, FOR SOURCE GROUP 1

* FOR THE RECEPTOR GRID *

DIRECTION / (DEGREES) /	RANGE (METERS) 1500.0	3000.0	5000.0
360.0 /	14.7	5.4	2.5
350.0 /	23.8	8.1	3.6
340.0 /	24.0	8.8	4.1
330.0 /	23.4	7.8	3.4
320.0 /	17.6	6.3	2.8
310.0 /	17.1	6.0	2.7
300.0 /	36.0	12.6	5.6
290.0 /	20.2	6.9	3.1
280.0 /	20.0	7.2	3.3
270.0 /	22.8	7.8	3.4
260.0 /	15.7	5.7	2.6
250.0 /	27.0	9.7	4.4
240.0 /	29.4	10.3	4.6
230.0 /	17.1	5.8	2.5
220.0 /	13.8	5.1	2.4
210.0 /	15.4	5.7	2.6
200.0 /	13.3	4.8	2.2
190.0 /	10.4	3.7	1.7
180.0 /	27.5	10.1	4.7
170.0 /	14.1	5.2	2.5
160.0 /	8.2	3.1	1.4
150.0 /	6.2	2.2	1.0
140.0 /	5.1	1.7	0.8
130.0 /	5.1	1.9	0.9
120.0 /	5.5	2.0	0.9
110.0 /	8.3	3.1	1.4
100.0 /	5.3	1.9	0.9
90.0 /	5.8	2.2	1.1
80.0 /	14.1	4.9	2.2
70.0 /	10.8	3.9	1.8
60.0 /	9.8	3.5	1.6
50.0 /	15.6	5.7	2.6
40.0 /	22.8	8.2	3.7
30.0 /	8.3	3.0	1.4
20.0 /	8.4	3.1	1.4
10.0 /	6.6	2.4	1.1