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

BOB GRAHAM
GOVERNOR

Victoria J. Tschinkel
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

January 5, 1982

Mr. Al J. Trimble
FMC Corporation
1115 Coleman Avenue
Box 145
San Jose, California 95103

AC 48-48485

Enclosed is Permit Number AC 48-48486, dated January 4, 1982 to FMC Corporation, Airline Equipment Division issued pursuant to Section 403, Florida Statutes.

Acceptance of the permit constitutes notice and agreement that the Department will periodically review this permit for compliance, including site inspections where applicable, and may initiate enforcement actions for violation of the conditions and requirements thereof.

Sincerely,

for C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management

CHF:caa

cc: Chuck Collins
Joseph Tessitore

DER Form 17-1.122(65)

Final Determination

FMC Corporation, Airline Equipment Division

Orange County, Florida

Application Numbers:

AC 48-48485
AC 48-48486
AC 48-48487

Florida Department of Environmental Regulation

Bureau of Air Quality Management

Central Air Permitting

December 29, 1981

The construction permit applications from FMC Corporation have been reviewed by the Bureau of Air Quality Management. Notice of the Department's Intent to Issue was published in the Orlando Sentinel Star on November 27, 1981. The preliminary determination was available for public review at the St. Johns River District Office in Orlando and the Bureau of Air Quality Management.

One letter of comments was received during this period. The St. Johns River District Office wished clarification of the rules being used and clarification of specifications of the baghouse proposed to be used. Since the comments are not substantive to the permit conditions, a separate response answers those concerns and will not be addressed here.

Therefore, it is requested that the construction permits be issued as proposed in the preliminary determination.

STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL REGULATION

CONSTRUCTION
PERMIT

NO. AC 48-48485

FMC CORPORATION, AIRLINE EQUIPMENT DIVISION
GRIT BLASTER

DATE OF ISSUANCE

January 4, 1982

DATE OF EXPIRATION

July 30, 1983

Victoria Tschinkel
VICTORIA TSCHINKEL
SECRETARY

DER FORM PERM 11-42

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

BOB GRAHAM
GOVERNOR
Victoria J. Tschinkel
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICANT: FMC Corporation, Airline Equipment Div.
P. O. Box 145
San Jose, California 95103

PERMIT/CERTIFICATION
NO. AC 48485

COUNTY: Orange

PROJECT: Grit Blaster

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

For the installation of a Grit Blaster at the FMC Corporation, airplane loaders manufacturing facility located at President's Drive in the city of Orlando, Orlando, Florida. The latitude and longitude coordinates are: 28°, 27', 43"N by 81°, 24', 39"W respectively.

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

Attachment:

"Application to Construct Air Pollution Sources" DER form 17-1.122(16), received on October 7, 1981.

PERMIT NO.: AC 48485
APPLICANT: FMC Corporation

GENERAL CONDITIONS:

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

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

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

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

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

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

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

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

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

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

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

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

13. This permit also constitutes:

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

PERMIT NO.: AC-48485
APPLICANT: FMC Corporation

SPECIFIC CONDITIONS:

1. The maximum emission rates for this source shall not exceed .17 lb./hr. of particulate matter.

2. The operating time shall be 16 hr./day, 5 days/wk., 52 wk./year.

3. Compliance with the particulate matter emission limit will be determined by reference method 9. Visible emission shall not exceed 5% opacity.

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

5. The applicant shall report any delays in construction and completion of this unit to the Department's St. Johns River District Office.

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

7. Upon obtaining an operating permit, the applicant will be required to submit periodic reports on the actual operation and emissions of the facility.

8. The source shall comply with the provisions and requirements of the general conditions.

PERMIT NO.: AC 48485
APPLICANT: FMC Corporation

Expiration Date: July 30, 1983

_____ Pages Attached.

Issued this 4 day of January, 1982.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Signature

STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL REGULATION

CONSTRUCTION
PERMIT

NO. AC 48-48486

FMC CORPORATION, AIRLIVE EQUIPMENT
DIVISION
HYDRAULIC TUBE CLEANER

DATE OF ISSUANCE

January 4, 1983

DATE OF EXPIRATION

July 30, 1983

Victoria Tschinkel
VICTORIA TSCHINKEL
SECRETARY

DER FORM PERM 11-42

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

BOB GRAHA
GOVERNO
Victoria J. Tschink
SECRETAR

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICANT: FMC Corporation, Airline Fquipment Div.
P. O. Box 145
San Jose, California 95103

PERMIT/CERTIFICATION
NO. AC 48-48486

COUNTY: Orange

PROJECT: Hydraulic Tube Cleaner

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

For the installation of a Hydraulic Tube Cleaner at the FMC Corporation, airplane loaders manufacturing located at President's Drive in the City of Orlando, Orlando Florida. The latitude and longitude coordinates are: 28°, 27', 43"N by 81°, 24', 39"W respectively.

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

Attachment:

"Application to Construct Air Pollution Sources" DER form 17-1.122 (16), received on October 7, 1981.

PERMIT NO.: AC 48-48486
APPLICANT: FMC Corporation

GENERAL CONDITIONS:

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

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

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

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

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

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

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

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

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

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

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

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

13. This permit also constitutes:

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

PERMIT NO.: AC 48-48486
APPLICANT: FMC Corporation, Airline Equipment Div.

SPECIFIC CONDITIONS:

1. The maximum emission rate for this source shall not exceed 5.53 lb/hr. of VOC emissions.

2. The operating time shall be 4 hr/day, 5 days/week, 52 weeks/yr. or 1040 hrs/yr.

3. The source shall comply with the control technology required in 17-2.16(6)(ℓ)2.

4. The amount of solvent used shall be as outlined in the permit application. VOC emissions shall be accounted for and controlled through accurate record-keeping of the solvent used in operation of this facility.

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

6. The applicant shall report any delays in construction and completion of this unit to the Department's St. Johns River District.

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

8. Upon obtaining an operating permit, the applicant will be required to submit periodic reports on the actual operation and emissions of the facility.

9. The source shall comply with the provisions and requirements of the general conditions.

PERMIT NO.: AC 48-48486
APPLICANT: FMC Corporation, Airline Equipment Div.

Expiration Date: July 30, 1983

Issued this 4 day of January, 1982

_____ Pages Attached.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Victoria Hall
Signature

STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL REGULATION

CONSTRUCTION
PERMIT

NO. AC 48-48487

FMC CORPORATION, AIRLINE EQUIPMENT DIVISION
PAINT SPRAY BOOTHS

DATE OF ISSUANCE

January 4, 1982

DATE OF EXPIRATION

July 30, 1983

VICTORIA TSCHINKEL
SECRETARY

DER FORM PERM 11-42

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

BOB GRAHAM
GOVERNOR

Victoria J. Tschinkel
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICANT: FMC Corp. Airline Equipment Div.
P. O. Box 145
San Jose, California 95103

PERMIT/CERTIFICATION
NO. AC 48-48487

COUNTY: Orange

PROJECT: Paint Spray Booths

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

For the construction of 3 paint booths at FMC Corporation plant located at President's Drive in the city of Orlando, in Orange County, Florida. The latitude and longitude coordinates are: 28°, 27'43"N by 81°,24'39"W respectively.

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

Attachment:

Application to Construct Air Pollution Sources, DER Form 17-1.122(16) received on October 7, 1981.

PERMIT NO.: AC 48-48487
APPLICANT: FMC Corporation

GENERAL CONDITIONS:

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

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

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

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

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

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

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

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

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

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

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

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

13. This permit also constitutes:

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

PERMIT NO.: AC 48-48487
APPLICANT: FMC Corporation

SPECIFIC CONDITIONS:

1. The amounts of paints and solvents used shall be restricted to prevent daily VOC emissions from exceeding 49 pounds per day.

2. The maximum production rate for this source shall not exceed

   24 loaders for 1982
   248 loaders for 1983
   308 loaders for 1984

   unless maximum VOC emissions are less than 12,597 pounds per year and 49 pounds per day. VOC emissions will be determined as described in section 17-2.16(7)(c) VOC content of coating materials. The paint shall be tested as applied.

3. The maximum operating time shall be 16 hr/day, 5 days/week 52 weeks/year.

1. The maximum emission rates for this source shall not exceed the emission limits listed in Table 2, Allowable emissions by years 1982 and 1984.

5. Conventional acrylic paints shall be replaced with hi-solid aklyd paint by 1984. The applicant shall report status of development of the new paint to the Department St. Johns River District Office semi-annually.

6. The applicant shall maintain accurate record-keeping of all paints and solvents used in operation of the spray booth facility. The applicant shall submit annual reports to the St. Johns River District Office as proof of compliance with permit VOC limits commencing one year after the operating permit is issued and annually thereafter.

7. During those times when the facility is being used for spray-painting or other related activities where solvent emissions can escape to the atmosphere, the doors shall be closed. Additional precautions, such as covering of solvent containers when not in use, shall be taken to prevent escape of VOC fugitive emissions.

8. The paint spray booth shall not be operated unless the exhaust fan and abatement equipment are functioning properly.

9. Compliance with the conditions of the permit shall be determined through visual inspection by a Department representative, and submittal of paint/solvent records as stated in Condition No. 6. The applicant shall furnish the Department a 30 day notice prior to testing.

PERMIT NO.: AC 48-48487
APPLICANT: FMC Corporation

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

11. The applicant shall report any delays in construction and completion of this unit to the Department's St. Johns River District Office.

12. The applicant will demonstrate compliance with the conditions of the construction permit, and submit a complete application for an operating permit to the Department's St. Johns River District office prior to 90 days of the expiration date of the construction permit. The applicant may continue to operate in compliance with all terms of the construction permit until its expiration date or issuance of an operating permit.

13. Upon obtaining an operating permit, the applicant will be required to submit periodic test reports on the actual operation and emissions of the facility.

14. The source shall comply with the provisions and requirements of the general conditions.

Expiration Date: July 30, 1983

_____ Pages Attached.

Issued this 4 day of January, 1982

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Signature

-7P5/25

Check Sheet

Company Name: FMC Corp
Permit Number: AC48 - 48485, -48486, -48487
PSD Number:
County:
Permit Engineer:
Others involved:

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

Intent:
- [x] Intent to Issue
- [x] Notice to Public
- [x] Technical Evaluation
- [ ] BACT Determination
- [ ] Unsigned Permit
- [ ] Correspondence with:
  - [ ] EPA
  - [ ] Park Services
  - [ ] County
  - [ ] Other
- [x] Proof of Publication
- [ ] Petitions - (Related to extensions, hearings, etc.)
- [x] Other

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

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

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee		
To: _____ Loctn.: _____		
To: _____ Loctn.: _____		
To: _____ Loctn.: _____		
From: _____ Date: _____		
Reply Optional [ ]	Reply Required [ ]	Info. Only [ ]
Date Due: _____	Date Due: _____	

TO: File

FROM: Clair Fancy

DATE: September 22, 1981

SUBJ: FMC Corporation

On September 10, Bill Thomas and I met with members of the Florida Commerce Department and the FMC Corporation relative to their proposed new facility in Orlando.

In summary, they will be emitting 10.5 tons per year of VOC from the facility, assuming 3.5 pounds solvent per gallon of coating from all operations except the custom colors for the finishing operation. By 1984 they will be emitting 3.5 pounds per gallon from the custom color operation as well.

Their argument is that the corrosion resistence from the coatings that they must use are not available in the high solids paint for the 170 custom colors that are required for their product.

Dupont is the only manufacturer of this type of paint and they have told FMC it will take a couple of years to develop all of the colors.

The proposed facility will cost approximately 20 million dollars and will employ 400 people. To install incineration for a period of about one year would cost 2.2 million dollars and would cost 5 million dollars (per year) in fuel costs. To bring one of the finishing operations from 4.2 pounds of solvent per gallon to 3.5 pounds of solvent per gallon (approximately one-half ton per year), does not make sense.

Bill Thomas and I will be looking into what part of the air rules we would be able to use to extend compliance through calendar year 1983. Final compliance with the VOC regulation is not required until December 31, 1982. From what FMC tells us, the technology is not available at this particular time. We will let you know our decision on this as soon as we decide on a way to handle it.

Since they will be submitting the applications under the current nonattainment rule, and their emissions, even though under 15 tons per year, will exceed 5 pounds per hour, CAPS will be doing the permitting.

cc: Chuck Collins

CF:caa

TO: C. Collins

THRU: T. Hunnicutt

THRU: A. Senkevich

THRU: C. Fancy

THRU: W. Thomas

FROM: J. Svec

DATE: December 29, 1981

SUBJ: Response to Comments on Preliminary Determination of FMC Corporation, Airline Equipment Division.

The memorandum from C. Collins on December 15, 1981, which comments on the preliminary determination of FMC Corporation, Airline Equipment Division, has been evaluated by the Bureau. The comments are not substantive to change the specific conditions of the permits. Responses to each comment are listed below in the same order as presented in the memorandum.

1. Permits are processed under the rules which were in effect when the applications were first received. Since the applications were received on October 7, 1981, the old rule was used.
2. The tube cleaner does not have a stack venting to the ambient air. Emissions occur when the lid is open.
3. The solvent metal cleaning requirements for cold cleaning technology (17-2.16(6)(1)2., FAC) apply for this source.
4. The information contained in AP-40 is used as a guidance not as a standard, ~~to be met.~~ Since the control equipment manufacturer specializes in

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

BAQM - Central Air Permitting

ACTION NO.

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION)	INITIAL	DATE
FANCY AMODIO MITCHELL HERON		
2. PALAGYI VEGA BOCK GEORGE		
3. HODGES THOMAS HANKS ROGERS		
4. POWELL SVEC KING HOLLADAY		

REMARKS:

Response to Chuck

for your review

File

FMC Permit file

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 & REPT
- INITIAL & FORWARD
- DISTRIBUTE
- CONCURRENCE
- FOR PROCESSING
- INITIAL & RETURN

FROM: John Svec

DATE 12-29

PHONE

sandblasting operations, it is believed that they know the capabilities of the control equipment. The Bureau does not specify control equipment; only emission limitations are placed in the permit. It is the applicant that assumes the risk of the control equipment meeting the emission limitations.

5. As stated above control equipment is not specified in the construction permit as a specific condition.
6. There is no requirement in 17-2 which can be used as the basis for a specific condition to prevent the waste solvent being placed in a landfill.
7. Information on the spray booths in presented after attachment I of Appendix D. Information on the spray guns was presented in appendix E.

If there are any further questions, please contact me at Suncom 278-1344.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

Clair Fancy

For Routing To District Offices And/Or To Other Than The Addressee

To: _____ Loctn.: _____
To: _____ Loctn.: _____
To: _____ Loctn.: _____
From: _____ Date: _____

ST. JOHNS RIVER DISTRICT Teresa

Bill

TO: Clair Fancy OSJ-81-3617

THROUGH: A. Senkevich

THROUGH: T. Hunnicutt

FROM: C. Collins

DATE: December 15, 1981

SUBJECT: Preliminary Determination - FMC Corporation Airline Equipment Division Applications to Construct Air Pollution Sources

As requested, we have reviewed the FMC applications and have the following comments.

1. The permit when issued should reflect the November 1, 1981 rule numbers in Chapter 17-2, F.A.C.

2. Does the tube cleaner have a stack venting to the ambient air?

3. What is the 5.35 #/VOC rule for the tube cleaner. If vented we need state data for imput to APIS.

4. In review of the grit blaster, we note the gas to cloth ratio is 3.94 to one. See page 117 of AP40 where the maximum recommended ratio for abrasive is 3 to one. Perhaps they could reduce the flow or increase the cloth area.

5. We also note the flow rate of 14,200 CFM is above the rating of the model number in the Venders Specifications. Also, stock number does not agree from application to the table they inserted before the baghouse is purchased, we should clean this up.

6. Waste solvent is said to be hauled away - state in permit it can't be placed in a landfill.

7. We would like the venders specs on at least the baghouse of the electrostatic spray guns. We feel this is important as we have not permitted any yet.

CMC:es

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

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

FILE

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ORLANDO SENTINEL-STAR
633 N. ORANGE AV.
ORLANDO, FL 32801

11/20/81

Dear Sir:

We are forwarding to you a legal/~~classified~~ advertisement to be published:

ASAP - ONE TIME ONLY

Subject: PUBLIC NOTICE

To ensure prompt payment, please send an invoice and proof of publication for legal ads to the address below:

Department of Environmental Regulation
PURCHASING OFFICE
2600 Blair Stone Road
Tallahassee, FL 32301

If you have any questions, please contact us at 904/488/0870.

Sincerely,

Wm H. Wallace

William H. Wallace
Purchasing Office

Enclosure: (1)

PUBLIC NOTICE

The Florida Department of Environmental Regulation (DER) has received applications from and intends to issue Construction Permits to FMC CORPORATION, AIRLINE EQUIPMENT DIVISION for the CONSTRUCTION of a 200,000 square foot manufacturing facility to fabricate airplane loaders to be located at Orlando Central Park, in Orange County, Florida. A determination of Best Available Control Technology was not required. Copies of the Applications, Technical Evaluation, and Departmental Intent are available for inspection at the following offices:

St. Johns River District
Dept. of Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

DER Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Comments on this action shall be submitted in writing to C. H. Fancy of the Tallahassee Office, within 30 days of this Notice.

To Appear in: Orlando Sentinel

Date: As soon as possible

Bill Wallace -
please have placed in
Orlando Paper ASAP
Thanks -
Tim Powell
BAQM
AC-1344

PUBLIC NOTICE

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2600 Blair Stone Road
Tallahassee, Florida 32301

Comments on this action shall be submitted in writing to C. H. Fancy of the Tallahassee Office, within 30 days of this Notice.

To Appear in: Orlando Sentinel

Date: As soon as possible

To Purchasing
11/20/81

PUBLIC NOTICE

The Florida Department of Environmental Regulation (DER) has received applications from and intends to issue Construction Permits to FMC CORPORATION, AIRLINE EQUIPMENT DIVISION for the CONSTRUCTION of a 200,000 square foot manufacturing facility to fabricate airplane loaders to be located at Orlando Central Park, in Orange County, Florida. A determination of Best Available Control Technology was not required. Copies of the Applications, Technical Evaluation, and Departmental Intent are available for inspection at the following offices:

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2600 Blair Stone Road
Tallahassee, Florida 32301

Comments on this action shall be submitted in writing to C. H. Fancy of the Tallahassee Office, within 30 days of this Notice.

To Appear in: Orlando Sentinel

Date: As soon as possible

Best Available Copy

'AR

County, Florida

ADVERTISING CHARGE $25.40

of Florida } SS.
NTY OF ORANGE

Before the undersigned authority personally appeared

Virginia Hollingsworth, who on oath says that she is the Legal Advertising Representative of the Sentinel Star, a Daily newspaper published at Orlando, in Orange County, Florida; that the attached copy of advertisement, being a Public Notice in the matter of Applications to issue Construction Permits to FMC Corp, etc. in the Court, was published in said newspaper in the issues of

Nov. 27, 1981

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

Virginia Hollingsworth

Sworn to and subscribed before me this 27th day of A.D., 1981

Notary Public

My commission expires

Form No. AD-31A

PUBLIC NOTICE

The Florida Department of Environmental Regulation (DER) has received applications from and intends to issue Construction Permits to FMC CORPORATION, AIRLINE EQUIPMENT DIVISION for the CONSTRUCTION of a 200,000 square foot manufacturing facility to fabricate airplane loaders to be located at Orlando Central Park, in Orange County, Florida. A determination of Best Available Control Technology was not required. Copies of the Applications, Technical Evaluation, and Departmental Intent are available for inspection at the following offices:

St. Johns River District
Dept. of Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

DER Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Comments on this action shall be submitted in writing to C. H. Fancy of the Tallahassee Office, within 30 days of this Notice.

CL-700 Nov.27,1981

DER
DEC 4 1981
PURCHASING

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

TO: Al J. Trimble, FMC Corporation
Joseph L. Tessitore, Cross/Tessitore & Associates
Chuck Collins, FDER St. Johns River District

FROM: C. H. Fancy, Bureau of Air Quality Management

DATE: November 30, 1981

SUBJ: Preliminary Determination - FMC Corporation, Airline Equipment Division Applications to Construct Air Pollution Sources

Attached is one copy of the application, Technical Evaluation and Preliminary Determination, and proposed permit to construct an airplane loader manufacturing facility in the Orlando Central Park, Orange County, Florida.

Please submit any comments which you wish to have considered concerning this action, in writing, to Bill Thomas of the Bureau of Air Quality Management.

CH/bjm

Attachment

Preliminary Determination

and

Technical Evaluation

FMC Corporation, Airline Equipment Division

Orange County, Florida

Application Number:

AC 48-48485 Grit Blaster
AC 48-48486 Hydraulic Tube Cleaner
AC 48-48487 Paint Spray Booths

Florida Department of Environmental Regulation

Bureau of Air Quality Management

Central Air Permitting

November 16, 1981

Public Notice

Construction of an air pollution source to be located in the Orlando Central Park, Orlando, Florida is being proposed by FMC Corporation, Airline Equipment Division. The proposed project is the construction of a 200,000 sq. ft. manufacturing facility to fabricate airplane loaders. The construction will increase emissions of air pollutants, in tons per year, by the following amounts:

PM	VOC
0.4	9.2

The proposed project has been reviewed by the Florida Department of Environmental Regulation (FDER) under Chapter 403, Florida Statutes. The Department has made a preliminary determination that the project can be approved provided certain conditions are met. A summary of the basis for the determination and the applications for state permits submitted by FMC Corporation are available for public review at the following FDER offices:

Bureau of Air Quality Management
Dept. of Environmental Regulation
2600 Blair Stone Road
Tallahasse, Florida 32301

St. Johns River District
Dept. of Environmental
Regulation
3319 Maguire Blvd. Suite 232
Orlando, Florida 32803

Any person may submit written comments to FDER regarding the proposed project. All comments, postmarked not later than 30 days from the date of this notice, will be considered by FDER in making a final determination regarding approval for construction of this source. Those comments will be made available for public review on request. Furthermore, an administrative hearing on the proposed project can be requested by any person by filing a petition for hearing as set forth in Section 28-5, 15 F.A.C. (copy attached). Such petition must be filed within 14 days of the date of this notice. Letters should be addressed to:

Mr. C. H. Fancy
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

I. SYNOPSIS OF APPLICATION

A. Name and Address of Applicant

FMC Corporation, Airline Equipment Division
P. O. Box 145
San Jose, California 95103

B. Source Location

The proposed source will be located at President's Drive in the City of Orlando, in Orange County, Florida. The latitude and longitude coordinates of the site are: 28°27'43"N by 81°24'39"W respectively.

C. Process Description and Controls

FMC proposes to build a 200,000 sq. ft. manufacturing facility to fabricate airplane loaders. The attached flow diagram (Chart 1) shows how the components and structural steel are welded, cleaned, painted, and combined to make a finished product. Chart 2 shows the operations involved in metal cleaning and painting. Hydraulic tubing is used throughout the loaders. After the fitting are attached, the tubing is cleaned to remove metal chips. Part of the proposed finishing procedures include grit blasting of large weldments. The painting system includes three paint booths.

Controls

The hydraulic tube cleaner is a 22'x4'x4' metal box. Solvent is pumped from a 55 gal. container and forced through the tubing and then drained back into the 55 gal. container. Although the solvent has a low volatility, the cleaner will be equipped with a cover at the operating end and cleaned parts will be allowed to drain before being removed to minimize VOC emission.

The grit blast system includes a baghouse for recovery of grit and dust control.

Volatile organic emissions from the painting system will be controlled by use of electrostatic spray guns and use of low solvent coating where available. Electrostatic spray guns will give 75% transfer efficiency vs. 55% for conventional application. Low solvent coatings are available for all applications except the custom colors line. A low solvent coating for this application will be available in 1984.

RULE APPLICABILITY

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

The proposed project will be located in Orange County, which has been designated "nonattainment" for the criteria pollutant ozone.

This project is subject to the provisions of section 17-2.17, New Source Review for Nonattainment Areas and subsection 17-2.17(3)(a)1.a.(11), Limited New Source Review Exemption which requires compliance with section 17-2.16. Therefore, the proposed construction is subject to the provisions of subsection 17-2.16(6)(l), Solvent Metal Cleaning, and 17-2.16(6)(n), Surface Coating of Miscellaneous Metal Parts and Products.

The source is also subject to the provisions of subsection 17-2.05(2) and 17-2.05(3) Prohibitive Acts for Particulate Matter and Fugitive Particulate Matter emissions.

III. SUMMARY OF EMISSIONS AND AIR QUALITY ANALYSIS

The operation of the proposed airplane loaders manufacturing facility will emit particulate matter (PM) and volatile organic compounds (VOC) to the atmosphere.

Table 1 summarizes volatile organic emissions which are controlled through the use of electrostatic spray guns and low solvent coatings where available. As the table shows. the applicant will replace the use of conventional acrylic paint with hi-solids alkyd paint when it becomes available. Low solvent paint in all colors will be available by 1984.

1982 production will be 24 loaders and 1983 production will be 248 loaders. This facility will not reach full production until 1984. Full production is expected to be 308 loaders/yr. Therefore, the actual VOC emissions during the period when high-solid paint is not available in all colors will be approximately 8% for 1982 and 80% for 1983 of total emissions as calculated by the applicant.

Table 2 lists the allowable emissions of the pollutants emitted from the proposed source.

Particulate matter emissions are insignificant.

No air quality analysis is required for this project.

Table 1

Summary of Emissions

Source	Pollutant Emissions[a]						
	VOC						PM
1. Coating System	Proposed System Using Eng. Controls[b]						
	1982			1984			
	Type of Paint	VOC #/gal.	Emissions #/yr	Type of Paint	VOC #/gal	Emissions #/yr	
Priming of small parts and weldments	Hi-Solids Alkyd	3.5	4,723	Hi-Solids Alkyd	3.5	4,723	
Thinners added to primer	-	-	-	-	-	-	
Touch-up priming of machines	Hi-Solids Alkyd	3.5	770	Hi-Solids Alkyd	3.5	770	
Thinners added to primer	-	-	-	-	-	-	
Finishing:							
White, grey, blue	Hi-Solids Alkyd	3.5	2,840	Hi-Solids Alkyd	3.5	2,840	
Custom colors	Conv. Acrylic	4.21	6,628	Hi-Solids Alkyd	3.5	4,264	
Thinners added to enamel	-	7.5	2,954	-	-	-	
Total Emissions #/yr			17,915			12,597	
2. Hydraulic Tube Cleaner			5.53 lb/hr				
3. Grit Blaster							.17 lb/hr

Table 1 (cont'd)

(a) Emissions as estimated by applicant. Calculations based on full production (308 loaders/yr).

(b) Proposed control system: Use of electrostatic spray guns and low-solvent technology as described in the application for years 1982-1984.

Table 2

Allowable Emission

Source	Pollutant Emissions				
1. Coating System	VOC				PM
	1982		1984		
	Type of Paint	Emissions #/yr(a)	Type of Paint	VOC #/gal	Emissions #/yr(c)
Priming of small parts & weldments	Hi Solids Alkyd	4,723	Hi-Solids Alkyd	3.5	4,723
Touch-up priming of machines	Hi-Solids Alkyd	770	Hi-Solids Alkyd	3.5	770
Finishing:					
White, grey, blue	Hi-Solids Alkyd	2,840	Hi-Solids Alkyd	3.5	2,840
(b) Custom colors	Conv. Acrylic	4,264	Hi-Solids Aklyd	3.5	4,264
Total Emissions #/yr	-	12,597	-	-	12,597
2. Hydraulic Tube Cleaner		5.53 lb/hr			
3. Grit Blaster					.17 lb/hr

(a) VOC emissions are based on limited production rate for years 1982 and 1983.

(b) This type of paint will be replaced with hi-solids alkyd by year 1984.

(c) Allowable emissions for year 1984 as calculated by applicant.

IV. Conclusion

Based on review of the data submitted by FMC Corporation, the FDER concludes that compliance with all applicable state air quality regulations will be achieved provided certain specific conditions are met.

Since the facility will not reach full production until 1984, the actual VOC emission (as detailed in Section III of this determination) will be in compliance with the applicable emission limit standard for this source.

Tables 1 and 2 show proposed and allowable emissions for this source. The impact of the emissions from this source will not cause or contribute to a violation of any ambient air quality standard.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee		
To: _____ Loctn.: _____		
To: _____ Loctn.: _____		
To: _____ Loctn.: _____		
From: _____ Date: _____		
Reply Optional [ ]	Reply Required [ ]	Info. Only [ ]
Date Due: _____	Date Due: _____	

TO: Bill Thomas

FROM: Teresa M. Heron T.H.

DATE: November 6, 1981

SUBJ: FMC Corporation

I am not clear on the following items:

1. I did not find any air pollution rule in Chapter 17-2 FAC, Section 17-2.17: 17-2.17(3)(a)1.a.(ii)
   Section 17-2.05
   Section 17-2.16: 17-2.16(l), 17-2.16(n), that would allow FMC Corporation an emission limit greater than 3.5 #VOC/gallon to be in compliance with state regulations.

2. Since they are not going to reach full production until 1984(?), I recommended a daily emission limit of 49 lb.VOC/day for the permit. This is really what they must reach by 1984 with the hi-solid paint and an emission limit of 3.5#VOC/gallon.

3. I noticed that in Table 2 of the application, they separated VOC emission as follows:

Finishing:	Hypoth. Compliant System 1982 lb VOC/gal		lb/yr	PROPOSED 1982 lb VOC/gal		lb/yr
White, grey, blue	Hi-Solids Alkyd	3.5	3,873	Hi-Solids Alkyd	3.5	2,840
Custom colors	Hi-Solids Alkyd	3.5	5,814	Conv. Acrylic	4.21	6,628
Thinners added to enamel	-	-	-	-	7.5	2,954

Shouldn't these VOC emissions be considered total for the acrylic paint and thinner? There is no emission limit for thinner alone, its emission must be included with the paint. Total emissions from the conventional acrylic paint and thinner will be 11.7 #VOC/gallon as calculated by the applicant.

See 17-2.16(6)(n)2.c. — yes it should be included with paint. This gives a problem — Add. of thinner would in effect increase the number of gallons of paint but additional volume (thinner) would be 100% VOC

Clair —

FMC may object to interim limits until custom color is available as low solvent. Although they gave production buildup figures the '83 production limit with high solvent colors will pinch but, in effect, this gives them an emission cap equal to full planned production with low solvent alkyd. The only alternative I see if there is too much outcry is to fall back on the argument that the 17.2.16 categorical compliance schedule (w fixed dates) allows 26 months from application submission & shift the start time to their actual schedule. — It's a weak argument at best. —

The full production with acrylic would give 6628 #/yr — projected production would give 5302 #/yr — We allowed 4264 based on final projections. The difference of 1038 #/yr in '83 could cause problems unless we could consider it to be de minimus & balanced by low '82 emissions. ½TPY is not really much but it is a technicality

BT

4. I have calculated custom color emissions using conventional acrylic paint based on the proposed production schedule for the years 1982 and 1983. These emissions are less than the total emissions proposed for 1984.

Based on this:

a). Should I give just a daily VOC emission limit as a permit condition 49 lb/day? They are asking for 72 lb./day.

Full Prod
Low

b). Should I give for 1982 and 1983 emission limits as proposed in Table 2, even though they are not in compliance with state rule? Should I limit production rate for each year or

c). Should I leave the permit as it is in the preliminary determination (VOC limited to 49 lb/day, production limits)?

I would appreciate your suggestions and comments, so I would have time to change the permits before you leave. Today is day 30.

TH/bjm

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO.

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION)	INITIAL / DATE
2. ~~B. Thomas BT~~ – See attached note	INITIAL / DATE
3. C. Fancy.	INITIAL / DATE
4.	INITIAL / DATE

REMARKS:

FMI Corporation's final preliminary determinations for your review and approval.
Are the specific conditions correct?
Day 55 is December 1, 1981

INFORMATION	DISPOSITION
REVIEW & RETURN	REVIEW & RESPOND
REVIEW & FILE	PREPARE RESPONSE
INITIAL & FORWARD	FOR MY SIGNATURE
	FOR YOUR SIGNATURE
	LET'S DISCUSS
	SET UP MEETING
	INVESTIGATE & REPT
	INITIAL & FORWARD
	DISTRIBUTE
	CONCURRENCE
	FOR PROCESSING
	INITIAL & RETURN

FROM: Teresa

DATE 11-12-81

 Rule Applicability

Particulate emissions are considered insignificant and will not subject the proposed construction to PSD review under 17-2.04.

The potential and actual emissions for the proposed project are listed below:

Emission Point	Pollutant	Emission Rates	
		Potential	Actual
Paint spray booths	VOC	11.88 lb/hr 23.76 ton/yr	4.48 lb/hr 8.96 ton/yr
Grit Blaster	PM	8.65 lb/hr 18.0 ton/yr	.17 lb/hr .4 ton/yr
Hydraulic Tube Cleaner	VOC	5.53 lb/hr 2.88 ton/yr	5.53 lb/hr 2.88 ton/yr

APPROVED	DISAPPROVED	SIGNATURE AND DATE
✓		Larry George
✓ *		Bill Thomas
✓		Clair Fancy 11/16/81

TH:caa

I basically agree but gradual production buildup, future switch to low solvent & present finish paint which exceeds RACT solvent limit must be addressed in determinations BT

TABLE 2

Proposed Coating Systems To Reduce Emissions

Coating System	Hypoth. Compliant System, 1982			Proposed System Using Eng. Controls 1982			1984		
	Type of Paint	VOC #/gal	Emissions #/yr	Type of Paint	VOC #/gal	Emissions #/yr	Type of Paint	VOC #/gal	Emissions #/yr
Priming of small parts & weldments	Hi-Solids Alkyd	3.5	10,234	Hi-Solids Alkyd	3.5	4,723	Hi-Solids Alkyd	3.5	4,723
Thinners added to primer	—	—	—	—	—	—	—	—	—
Touch-up priming of machines	Hi-Solids Alkyd	3.5	770	Hi-Solids Alkyd	3.5	770	Hi-Solids Alkyd	3.5	770
Thinners added to primer	—	—	—	—	—	—	—	—	—
Finishing:									
White, grey, blue	Hi-Solids Alkyd	3.5	3,873	Hi-Solids Alkyd	3.5	2,840	Hi-Solids Alkyd	3.5	2,840
Custom colors	Hi-Solids Alkyd	3.5	5,814	Conv. Acrylic	4.21	6,628	Hi-Solids Alkyd	3.5	4,264
Thinners added to enamel	—	—	—	—	7.5	2,954	—	—	—
Total Emissions #/yr			20,691			17,915			12,597

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee		
To: _____	Loctn.: _____	
To: _____	Loctn.: _____	
To: _____	Loctn.: _____	
From: _____	Date: _____	
Reply Optional [ ]	Reply Required [ ]	Info. Only [ ]
Date Due: _____	Date Due: _____	

TO: Permit File AC 48-48485
AC 48-48486
AC 48-48487

THRU: Clair Fancy
~~Bill Thomas~~ BT
Larry George LG

FROM: Teresa M. Heron TH

DATE: October 20, 1981

SUBJ: Preliminary Rule Applicability - FMC Corp. Airline Equipment Division, Orange County

An application for a permit to construct was submitted to the Bureau of Air Quality Management on October 7, 1981, by FMC Corporation. The application is being reviewed for completeness; day 30 will be November 6, 1981.

The proposed project is the construction of a 200,000 sq. ft. manufacturing facility to fabricate airplane loaders. The painting system will include three paint booths.

The FMC Airline Equipment Division is located in the Orange County Ozone Nonattainment Area.

The proposed construction is subject to the new source review requirements of 17-2.17 F.A.C. Since VOC potential emissions will be greater than 5 lb/hr, with actual VOC emissions less than 100 lb/hr and 50 ton/yr, the proposed construction will be subject to the Limited New Source Review Exemption 17-2.17(3)(a)1.a.(ii). This provision requires compliance with applicable New Source Performance Standard (NSPS) and Hazardous Air Pollutant Standard (NESHAPS) or "any applicable emission limiting standard in 17-2.05 or 17-2.16, whichever is more restrictive". Therefore, the proposed construction is subject to the provisions of subsection 17-2.16(6)(n) Surface Coating of Miscellaneous Metal Parts and Products.

Particulate emissions are considered insignificant and will not subject the proposed construction to PSD review under 17-2.04.

The potential and actual emissions for the proposed project are listed below:

Emission Point	Pollutant	Emission Rates	
		Potential	Actual
Paint spray booths	VOC	11.88 lb/hr 23.76 ton/yr	4.48 lb/hr 8.96 ton/yr
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Hydraulic Tube Cleaner	VOC	5.53 lb/hr 2.88 ton/yr	5.53 lb/hr 2.88 ton/yr

APPROVED	DISAPPROVED	SIGNATURE AND DATE
✓		Larry George Larry George
✓ *		Bill Thomas Bill Thomas
✓		Clair Fancy 11/16/81 Clair Fancy

TH:caa

I basically agree but gradual production buildup, future switch to low solvent & present finish paint which exceeds RACT solvent limit must be addressed in determinations
BT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

№ 335

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from Cross Tessitore & Associates, P.A. Date October 7, 1981

Address 1611 E Hillcrest St, Orlando, Fl 32803 Dollars $60.00

Applicant Name & Address FMC Corporation, Airline Equip. Div.
1115 Coleman Avenue Box 145

Source of Revenue AC 48-48485

Revenue Code 0101 Application Number 48486, 48487

By Tim Powell

```
                DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD
FILE#000000048485 COE#            DER PROCESSOR:HERON                DER OFFICE:TLH
FILE NAME:FMC CORP                 DATE FIRST REC: 10/07/81  APPLICATION TYPE:AC
APPL NAME:TRIMBLE                  APPL PHONE:(408)289-3194   PROJECT COUNTY:48
ADDR:1115 COLEMAN AVE - BOX 145           CITY:SAN JOSE            ST:CAZIP:95103
AGNT NAME:TESSITORE                AGNT PHONE:(305)898-6140
ADDR:1611 E HILLCREST ST                  CITY:ORLANDO             ST:FLZIP:32803

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

HEARING REQUEST DATES:                    /  /            /  /             /  /
HEARING WITHDRAWN/DENIED/ORDER -- DATES:  /  /            /  /             /  /
HEARING ORDER OR FINAL ACTION DUE DATE:   /  /      MANUAL TRACKING DESIRED:N
     THIS RECORD HAS BEEN SUCESSFULLY ADDED              10/08/81    09:28:35
FEE PD DATE#1:10/07/81 $0020  RECEIPT#00033582 REFUND DATE:  /  /  REFUND $
FEE PD DATE#2:  /  /   $      RECEIPT#         REFUND DATE:  /  /  REFUND $
APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:AC DATE:10/07/81
REMARKS:GRIT BLASTER
SOURCE LOCATION: PRESIDENT'S DR - ORLANDO
```

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO.

ACTION DUE DATE

1: TO: (NAME, OFFICE, LOCATION)	INITIAL / DATE
File:	
2. John Howell, FMC, Phila	INITIAL / DATE
3. 215-299-6203	INITIAL / DATE
Becky: make file	INITIAL / DATE

REMARKS:

New AC: File:

{FMC Corporation
Airline Equip. Div.}

use green hanging folder. + clear tab.

Copies were sent to Chuck Collins, FDER, Orlando and Central Files

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 & REPT
INITIAL & FORWARD
DISTRIBUTE
CONCURRENCE
FOR PROCESSING
INITIAL & RETURN

FROM: Tim Powell

DATE 8 OCT '81

PHONE

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#00000000048486 COE# DER PROCESSOR:HERON DER OFFICE:TLH
FILE NAME:FMC CORP DATE FIRST REC: 10/07/81 APPLICATION TYPE:AC
APPL NAME:TRIMBLE APPL PHONE:(408)289-3194 PROJECT COUNTY:48
ADDR:1115 COLEMAN AVE - BOX 145 CITY:SAN JOSE ST:CAZIP:95103
AGNT NAME:TESSITORE AGNT PHONE:(305)898-6140
ADDR:1611 E HILLCREST ST CITY:ORLANDO ST:FLZIP:32803

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

HEARING REQUEST DATES: / / / / / /
HEARING WITHDRAWN/DENIED/ORDER -- DATES: / / / / / /
HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED:N
THIS RECORD HAS BEEN SUCESSFULLY ADDED 10/08/81 09:33:03
FEE PD DATE#1:10/07/81 $0020 RECEIPT#00033582 REFUND DATE: / / REFUND $
FEE PD DATE#2: / / $ RECEIPT# REFUND DATE: / / REFUND $
APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:AC DATE:10/07/81
REMARKS:HYDRAULIC TUBE CLEANER
SOURCE LOCATION: PRESIDENT'S DR - ORLANDO

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#00000000048487 COE# DER PROCESSOR:HERON DER OFFICE:TLH
FILE NAME:FMC CORP DATE FIRST REC: 10/07/81 APPLICATION TYPE:AC
APPL NAME:TRIMBLE APPL PHONE:(408)289-3194 PROJECT COUNTY:48
ADDR:1115 COLEMAN AVE - BOX 145 CITY:SAN JOSE ST:CAZIP:95103
AGNT NAME:TESSITORE AGNT PHONE:(305)898-6140
ADDR:1611 E HILLCREST ST CITY:ORLANDO ST:FLZIP:32803

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

HEARING REQUEST DATES: / / / / / /
HEARING WITHDRAWN/DENIED/ORDER -- DATES: / / / / / /
HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED:N
THIS RECORD HAS BEEN SUCESSFULLY ADDED 10/08/81 09:39:01
FEE PD DATE#1:10/07/81 $0020 RECEIPT#00033582 REFUND DATE: / / REFUND $
FEE PD DATE#2: / / $ RECEIPT# REFUND DATE: / / REFUND $
APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:AC DATE:10/07/81
REMARKS:SMALL PARTS SPRAY BOOTH; LARGE WELDMENTS SPRAY BOOTH; FINISHING BOOTH
SOURCE LOCATION: PRESIDENT'S DR - ORLANDO

Receipt # 33582

AC 48-48485

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

OCT 1981 RECEIVED BUREAU A Q M

SOURCE TYPE: Manufacturing [X] New[1] [ ] Existing[1]

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

COMPANY NAME: FMC Corp. Airline Equipment Division COUNTY: Orange

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

SOURCE LOCATION: Street President's Drive City Orlando

UTM: East _____ North _____

Latitude 28 ° 27 ' 43 "N Longitude 81 ° 24 ' 39 "W

APPLICANT NAME AND TITLE: Mr. Al J. Trimble Airline Equipment Division Manager

APPLICANT ADDRESS: 1115 Coleman Avenue Box 145 San Jose, California 95103

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of FMC Corporation

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

*Attach letter of authorization

Signed: _____

Al J. Trimble Airline Equip. Div. Mgr.
Name and Title (Please Type)

Date: 10-6-81 Telephone No. 408-289-3194

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

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

(Affix Seal)

JOSEPH L. TESSITORE CERTIFICATE NO. 23374 STATE OF FLORIDA PROFESSIONAL ENGINEER

Signed: _____

Joseph L. Tessitore, P.E.
Name (Please Type)

Cross/Tessitore & Associates, P.A.
Company Name (Please Type)

1611 E. Hillcrest St. Orlando, FL 32803
Mailing Address (Please Type)

Florida Registration No. 023374 Date: 10-6-81 Telephone No. 305/898-6140

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

SECTION II: GENERAL PROJECT INFORMATION

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

See Attachment A

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

Start of Construction January 1982 Completion of Construction January 1983

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

Dust Collector $16,260

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

None

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

F. Normal equipment operating time: hrs/day 16 ; days/wk 5 ; wks/yr 52 ; if power plant, hrs/yr ____ ;

if seasonal, describe: ____

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

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

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

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Abrasive Steel Grit	Particulate	100	Approximately 18ton/yr	Grit Blast Unit
80 Mesh				

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

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	.17	.4	E = 3.59P exp .62	8.1	8.65	18.0	Grit
			P = tons/hr.				Blast
			E = pounds/hr.				Unit

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Clemco Dust Collector	Particulate	98%	Greater than 0.5 Microns	Vendor
Model Number 3600				
Stock Number				
65 RDC 6704				

[1]See Section V, Item 2.

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

[3]Calculated from operating rate and applicable standard

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

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

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

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

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

Eighteen tons per year of used grit and miscellaneous dirt and soils will be sent to a Landfill.

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

Stack Height: to be determined ft. Stack Diameter: _____ ft.

Gas Flow Rate: 14,200 ACFM Gas Exit Temperature: Ambient °F.

Water Vapor Content: _____ % Velocity: 50 feet per hour Sec FPS

SECTION IV: INCINERATOR INFORMATION

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

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

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

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

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

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

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

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration

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

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

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

10. Stack Parameters

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

c. Flow Rate: ACFM d. Temperature: °F

e. Velocity: FPS

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

1.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy*: h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

2.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy**: h. Maintenance Costs:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

*Explain method of determining efficiency.

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

3.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above.

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

F. Describe the control technology selected:

1. Control Device:

2. Efficiency*:

3. Capital Cost:

4. Life:

5. Operating Cost:

6. Energy:

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

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

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

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

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

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

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

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

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

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

B. *Meteorological Data Used for Air Quality Modeling*

1. _____ Year(s) of data from _____/_____/_____ to _____/_____/_____
month day year month day year

2. Surface data obtained from (location) _____

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

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

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

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

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

E. Emission Data Used in Modeling

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

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

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

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

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

Attachment A

FMC is planning to build a 200,000 sq. ft. manufacturing facility in the Orlando Central Park, Orlando, Florida to fabricate air plane loaders (see attached photo). Chart 1 shows how the components and structural steel are welded, cleaned, painted, and combined to make a finished product. Chart 2 shows the operations involved in metal cleaning and painting. Part of the proposed finishing procedure involves grit blasting of large weldments. The attached proposal from Clemco Industries describes the grit blast system and associated baghouse for recovery of grit and dust control.

Emission Calculations

Assumptions

Annual Grit usage = 18 tons/yr
Maximum flow rate for 3 nozzels = 7500 lb/hr
4160 hrs per year operation

Allowable Emissions

$E = 3.59(p)^{0.62}$
$= 3.59\ (7500/2000)^{0.62}$
$= 8.1$ lbs/hr

Potential Emissions

Assume 18 tons of grit/yr go to atmosphere

$$\frac{(18\ \text{tons/yr})\ (2000\ \text{lb/ton})}{4160\ \text{hr/yr}} = 8.65\ \text{lbs/hr}$$

Actual Emissions

Assume baghouse efficiency = 98%

Baghouse emissions in tons/yr = (18)(0.2) = .36 tons/yr

Maximum lbs/hr

$$\frac{.36\ \text{tons/yr}\ (2000\ \text{lbs/ton})}{4160\ \text{hr/yr}} = .17\ \text{lb/hr}$$

r412B4a
ka61

FMC

Model JC/PL-2
Container/Pallet Loader

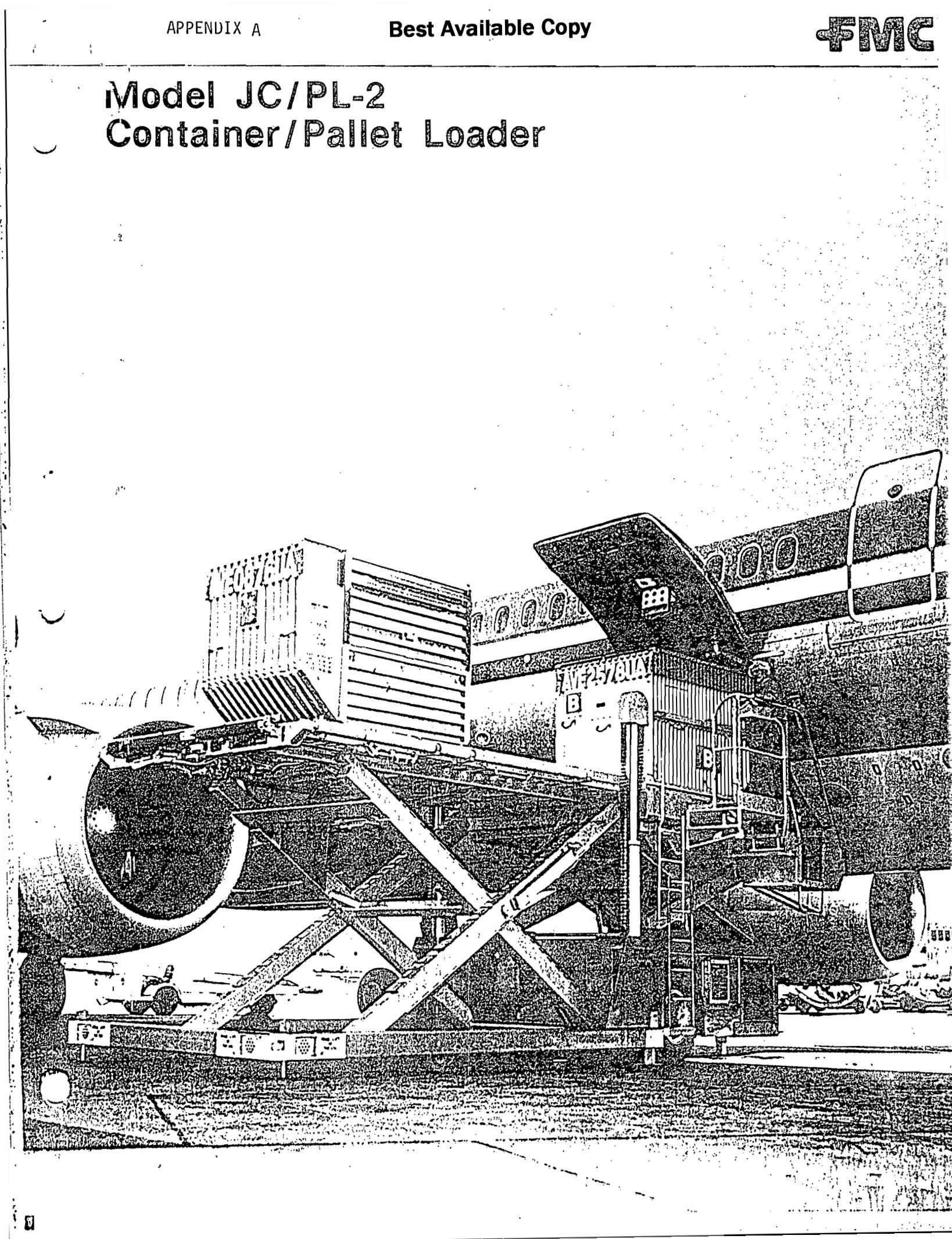
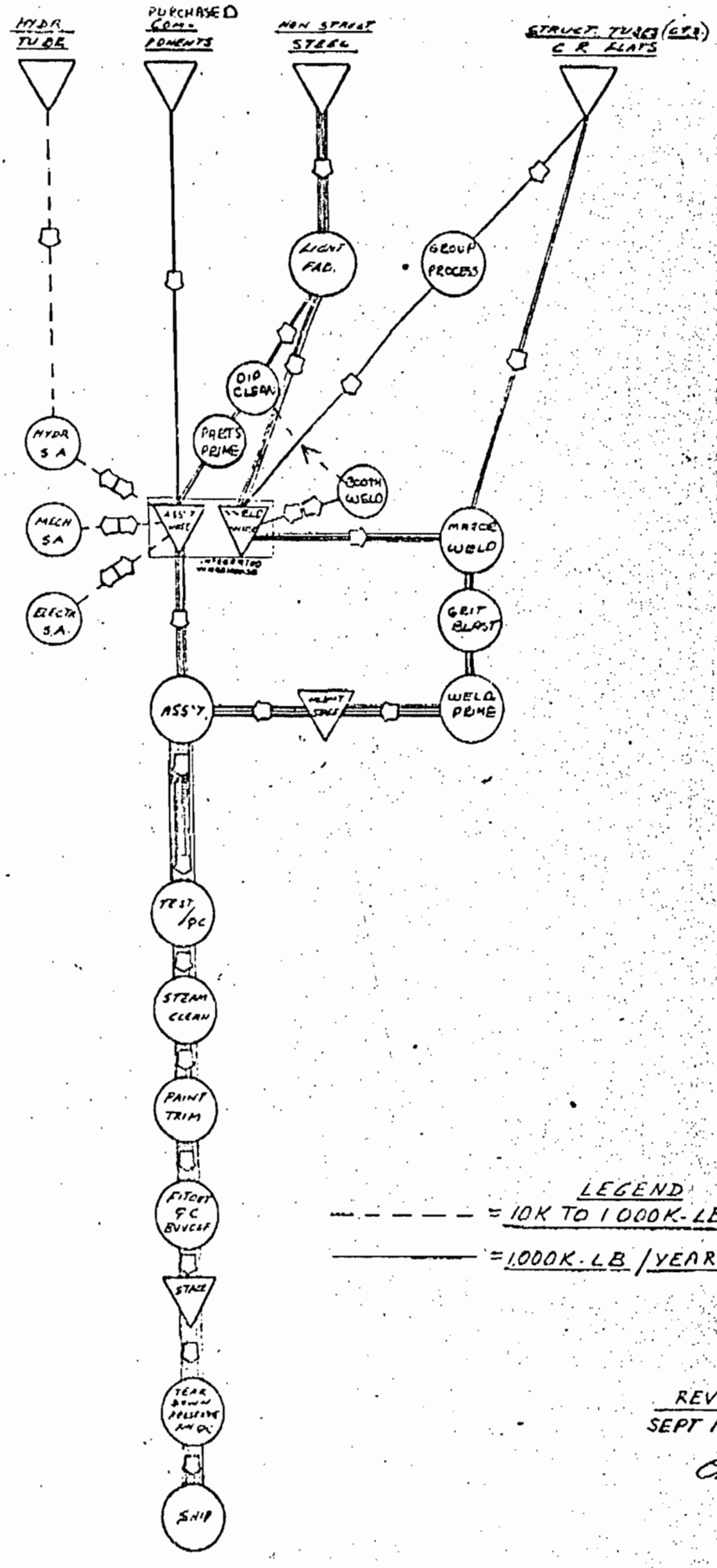


CHART 1

EASTERN PLANT
PROPOSED MAJOR PROCESS FLOW
1985 LOADER PRODUCTION ONLY



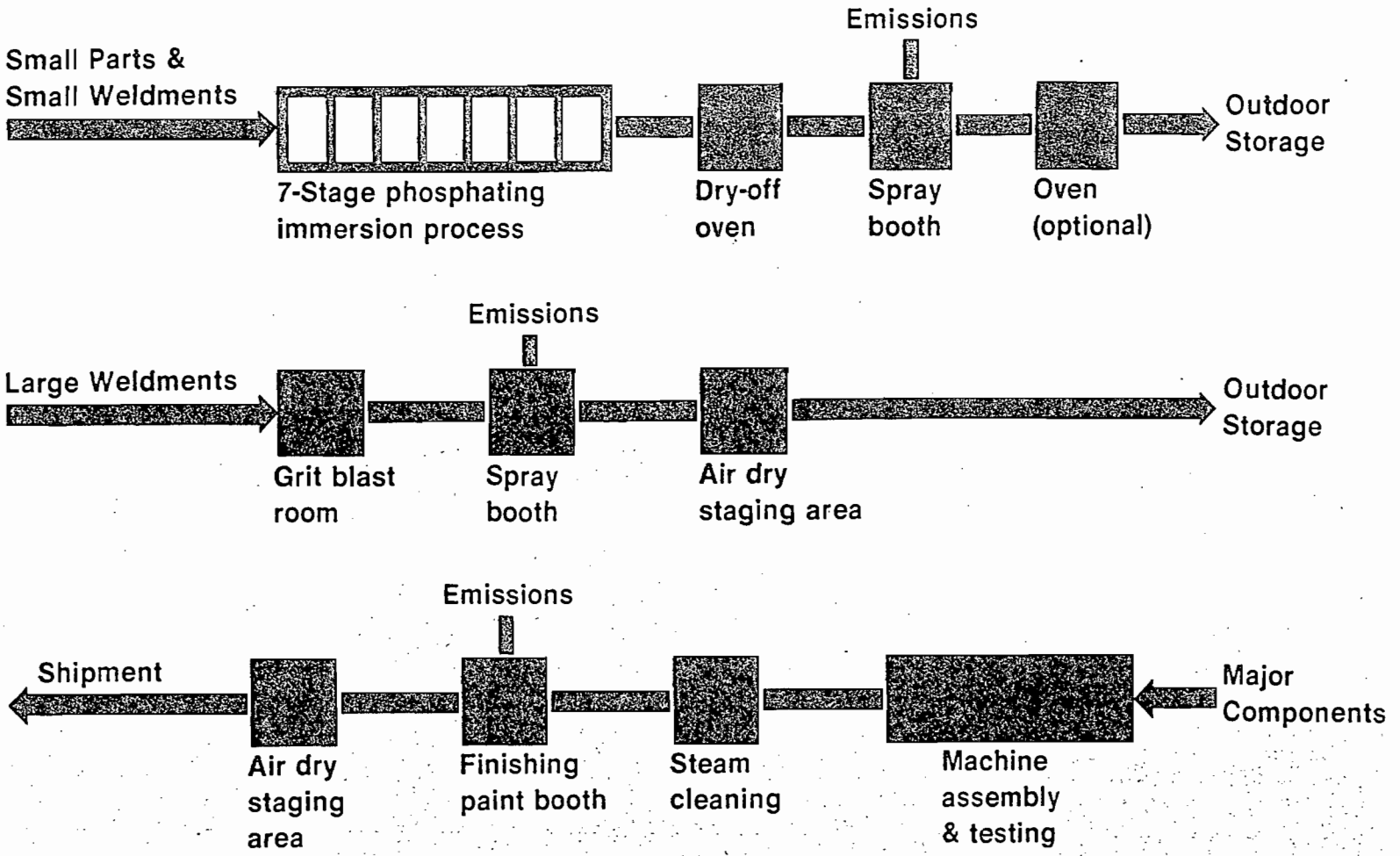
LEGEND

- - - - - - = 10K TO 1000K-LB/YEAR

——— = 1000K-LB/YEAR

REVISION # 4
SEPT 15 1981

Proposed Finishing Procedure



Proposal

especially prepared for:

FMC CORPORATION

October 15, 1980

Our Proposal No. 2019-R
(Please reference this number in all correspondence.)

FMC Corporation
Airline Equipment Division
1115 Coleman Avenue, Box 145
San Jose
California 95103

Attn: Mr. Robert E. Harroff, Manager, Facilities Planning
Subj: Proposal of Clemco Abrasive Blast Cleaning Facility and accessories.

Gentlemen:

At the request of our distributor, Clementina Ltd. in Santa Clara, we are pleased to offer the attached specifications of the proposed equipment noted below.

In order to meet the customer's requirements, we propose the following:

I. Blast Room

a. Inside dimensions: Length: 50' 0"
Width: 17' 0"
Height: 16' 0"

b. Doors (one end): Height: 16' 0"
Width: 17' 0"

c. Abrasive type and mesh to be used: Steel Grit, 80 mesh & coarser

d. Number of light modules: Thirty, ceiling mounted

e. Mandoor: One provided

f. Walkways: 50'L x 4'W, against each side wall. Handrails and ladders included.

I. g. Overhead Monorail System: For use in conjunction with a work cart for material handling purposes. FMC to provide monorail and to suspend and support same via support rods through the blast room ceiling. Clemco to provide door cut-outs for monorail.

h. Price:

i. Weight: 62,174 pounds, F.O.B. Memphis, Tennessee.

II. Abrasive Recovery System with Bucket Elevator

a. Flo-Flor providing recovery over entire floor area.

1. Dimensions: 50'L x 15'7"W

2. Recovery Pans: Six each: 25'L x 5'W (nominal)

3. Shed Plates: against each side wall

4. Configuration: allows for a set of standard (4'8-1/2") rails through center of room for use with a material handling cart.

b. Electrical requirements:

Motor: Two each: 1 H.P., 460 Volt, 3 Phase, 60 Hz

c. Floor loading capacity: 250 lb./sq. ft. uniform load grating over the entire recovery floor area.

d. Price:

e. Weight: 19,141 pounds, F.O.B. Memphis, Tennessee

III. Air Abrasive Cleaner

a. Electrical requirements:

1/4 H.P., 460 Volt, 3 Phase, 60 Hz

b. Support Stand: Provided with a support stand designed to feed two blast machines simultaneously.

c. Price:

d. Weight: 1,000 pounds, F.O.B. Memphis, Tennessee

IV. Blast Machine

a. Two provided.

b. Stock Number: 10 BMP 0924

c. Model Number: SC 2452

d. Accessories: per attached specifications

e. Price:

f. Weight: 1,200 pounds, F.O.B. Memphis, Tennessee

V. Dust Collector

a. Stock Number: 65 RDC 6704

b. Model Number: 3600

c. Ventilation requirement: 50 F.P.M., End Draft

d. Electrical requirements: Exhauster- 25 H.P., 460 V, 3 Ph, 60 Hz
Shaker- 3/4 H.P., 460 V, 3 Ph, 60 Hz

e. Exhauster part number: 65 RDC 6716

f. Price: $16,260

g. Weight: 8,441 pounds, F.O.B. Memphis, Tennessee

VI. Electrical Control Panel

a. Standard with interlocked controls for the cross conveyer, bucket elevator, and abrasive cleaner; and cycle time controls for the dust collector.

b. Price:

c. Weight: 600 pounds, F.O.B. Memphis, Tennessee

JBJECT:

Proposal No.: 2019-R

Specifications

BLAST ROOM

General:

The Clemco Blast Room is specially ventilated and illuminated for enclosed abrasive blasting. It utilizes prefabricated component construction and sealing compound supplied for all bolt-together areas. All steel is delivered with rust preventative prime coat. The room is shipped unassembled and crated to prevent transit damage. Prior to installation, the foundation is to be flat, level and squared.

Structural Frame:

Vertical support columns are fabricated from 3" - 4.1 channels and are installed at five foot nominal intervals. Door columns are fabricated from structural channel sized with respect to door opening dimensions. Wall headers are channels fabricated from 3½ x 3½ x ¼ angle and extend full room length. The door header is wide flange beam. Roof beams, located at each support column, are light structural beams. Roof beam size may vary if monorail is supplied. Structural tee's between roof beams supply additional support for roof panels.

Walls:

Walls are 10 gauge hot-rolled steel sheets in 48" and 60" panel increments. Installed on interior surface, the panels are fastened to wall columns and headers by formed battens which bolt through the structural member.

Roof:

14 gauge hot-rolled sheets are fitted with light module support frames. Panels drop into position and are secured to structural frame with specialized steel clamps.

Doors:

Framework is structural tube and channel. Door panel is 10 gauge hot-rolled steel. Doors pivot on anti-friction bearings. Rubber strips seal the door in the closed position. Air inlets for room ventilation are located in lower portion of door panels. Inlets are baffled and screened.

BLAST ROOM, continued. . .

Air Flow:

Exhauster suction, through the dust collector and ducting network, creates a negative pressure of ½" W.G. (nominal) at one end of the blast room. This causes free air to be drawn through air inlets at the opposite end of the room developing a cross draft air flow. Inlets are both screened and baffled. Exhaust outlet is baffled to permit only carry-out of dust laden air. Inlets and outlets are proportionately sized to insure proper air volume/rate flow as required by state and local pollution regulations.

Lighting:

An exterior mounted light module is supplied for each 30 sq. ft. (nominal) of roof area. The module consists of four 40 watt, 48" flourescent lights mounted in a dust sealed reflector housing. Lights are protected by ⅛" thick wire mold glass which is flush with interior room ceiling.

FULL FLO-FLOR RECOVERY SYSTEM

Flo-Flor Recovery System consists of the Flo-Flor Assembly, Cross Conveyor Mechanism, Bucket Elevator and Steel Grating. Air Abrasive Cleaner and Pressure Blast Machine are specified separately.

The entire blast room floor recovery area is covered by a Steel Grating. Abrasive falls through Grating into Steel Conveyor Pans which run lengthwise through the floor recovery area. Pans advance abrasive to the Cross Screw Conveyor which is perpendicular to the pans. The Cross Conveyor collects and delivers abrasive to a vertical Bucket Elevator. Abrasive is elevated and discharged into an Air Abrasive Cleaner which cleans, classifies and returns abrasive to a Pressure Blast Machine.

Conveyor pans are of 10 gauge steel and are suspended by link chain with anti-friction bearings. Support beams which provide bearing area for grating, separate conveyor pans. Areas between pans and beams are kept free of abrasive through the use of a double seal of sheet metal and neoprene. 16 gauge formed sheets fasten to beams and fit into slots formed with sheet metal on conveyor pans. 3/16" neoprene rubber is fastened to the sheet metal on the beams and drapes over sealing area of the pans. Seal strips are placed on support beams. A scalping screen is provided at the front lip of the pan to prevent large foreign objects from entering the reclaim system.

Cross Conveyor Mechanism:

The Cross Screw Conveyor Assembly is located at the center of the room. The housing is assembled from welded tubular steel and 12 gauge plate. Easy access is provided by hand removable checker plate covers.

RECOVERY SYSTEM continued. . .

Major components located inside the Cross Screw Conveyor Assembly are the Cross Recovery Screw, Drive Shaft and Pan Drive Box Units.

The Cross Recovery Screw collects abrasive discharged from the floor pans. The screw then delivers abrasive to the Bucket Elevator. The helicoid screw is 6" in diameter. Flighting is 1/8" thick at the outer edge and 1/4" thick next to the shaft.

Floor recovery pans are independently driven by unitized drive boxes. Each drive box is totally enclosed for maximum protection from the abrasive atmosphere. Inside the drive box, a case-hardened cam provides reciprocating movement of conveyor pan. A laminated rubber/fiber impact pad absorbs shock of forward pan motion. Individual pan motion can be readily adjusted through a connecting link located between the drive box and the floor recovery pan. Central drive shaft runs the length of the Cross Screw Conveyor and interconnects the individual pan drive boxes to the common drive motor. Pan drive boxes can be individually removed from the Cross Conveyor for ease of maintenance.

The entire Cross Conveyor assembly and floor pans are powered by a 1 H.P., 3 Phase, TEFC, 1725 R.P.M. motor with a 30 to 1 gear reducer.

Bucket Elevator:

Elevator is directly connected to the cross conveyor on the outside of the room at the opposite end from the conveyor drive. Cross Conveyor brings abrasive to inlet section of elevator and into the path of the elevator buckets.

Elevator casing 18" by 10", fabricated of 14 gauge steel, 3-3/4" by 3" steel buckets are attached to a 4" wide, reinforced, 4 ply rubber belt. Buckets are spaced 6-1/2" apart to provide a continuous discharge of abrasive. The elevator belt is powered by a top drive 1 H.P., 3 Phase, 1725 R.P.M., TEFC motor with a 20 to 1 gear reducer. Belt drive is easily adjustable to provide proper belt tension and tracking. Standard unit is 16'0" high from bottom of boot to top of elevator, shipped completely assembled, primed with the standard Clemco green.

AIR ABRASIVE CLEANER
MODEL BRAC

Stock No. 64DAC6801

The Air Abrasive Cleaner combines an air wash process with screening to remove non-usable fines and oversized particles from the recycling abrasive.

The body of the unit is constructed of 12 gauge steel and is 25" by 21" in cross section. The height from the bottom supporting plate to the top of the cleaner is 75".

A drum type screen, rotating on ball bearings sealed against dust, discharges oversized particles into the coarse discharge chute. The rotary screen is powered by a 1/4 H.P., 3 Phase, TEFC, 1725 R.P.M. motor with a 60 to 1 gear reducer.

The mixture of abrasive and dust which passes through the screen flows over a series of baffles where it is air washed, the undersized material going into the fines discharge chute.

The Dust Collector connection is a six inch diameter outlet with an adjustable damper which can be set so that the air flow will take the dust and non-usable fines out of the recycling abrasive but will not remove usable particles.

After passing the air wash and the screen, the clean abrasive falls into the abrasive storage section which has a capacity of 10 cubic feet.

The Air Abrasive Cleaner mounts on a diverter type support stand allowing the cleaner to feed multiple blast machines simultaneously and evenly.

The unit is shipped completely assembled and painted with the standard Clemco green.

CLEMCO DUST COLLECTION UNIT

The Clemco Dust Collector enclosure consists of 14 gauge steel in 30" wide, flanged, bolted panels. Mastic is supplied to seal flanges. Steel support (legs) are 9' 6" long.

The cloth area of this Clemco Dust Collector is based on the size of the blast room to be ventilated.

Dust hopper with side wall slope no less than 45 degrees from the horizontal will discharge through a 6" diameter flexible tube into a standard open end steel drum. The flexible tube, standard steel drum cover and cover clamp are supplied by Clemco for each hopper. Standard steel drums are supplied by the user.

A relay timer is supplied for shaker control. The timer motor is energized by turning off the exhauster drive motor. This will turn on the shaker motor for a predetermined time, after which the shaker motor shuts off automatically. 12" by 24" framed inlets for unfiltered air are provided at the bottom of the side panels. 24" by 24" framed clean air outlets are provided in the center of the roof panels.

Also supplied are the fan drive motor and V-belt drive, contained in an enclosure attached to the exhauster and suitable for outside installation.

CLEMCO DUST COLLECTION UNIT

Stock Number : 65 RDC 6705

Type of abrasive to be used in room: Steel Grit, 80 mesh & coarser
(Serious consideration should be
given to any changes proposed in
abrasive type.)

Cloth Filter Model No. : 3600

Ventilation Area : 272 sq. ft.

Ventilation Rate : 50 F.P.M., End Draft

Air Volume : 14,200 C.F.M.

Cloth Area : 3,600 sq. ft.

Air to Cloth Ratio: 3.94:1

Fan Drive Motor : 25 H.P., 3 Phase, 1725 R.P.M., Open Drip Proof

Shaker Motor : 3/4 H.P., 3 Phase, 1725 R.P.M., TEFC

Drums Required : Two (customer supplied)

Filter Dimensions without ladder or platform:

Length: 12'6"

Width : 8'0"

Height: 21'11"

Dust Collectors are shipped unassembled and primed for rust prevention.

CLEMCO INDUSTRIAL BLAST MACHINE PACKAGE
6 Cubic Foot Capacity
Stock Number 10BMP 0924

Manufactured by the world's largest producer of portable sandblast equipment, this is a high production model, incorporating necessary safety features and maximum productivity.

The REMOTE CONTROL HANDLE at the nozzle allows the operator to start and stop the machine. Should the nozzle drop from the operator's hand, the blast will be stopped automatically.

The CLEMCO HIGH PRODUCTION NOZZLE is manufactured in our own plant. It has a venturi shaped orifice with 1¼" entrance opening providing a more uniform flow of air and abrasive and assuring a 15% to 20% increase in blast cleaning production.

The 6 cu. ft. capacity stationary blast machine, Model SC 2452, will be supplied with the accessories listed below:

Grit Valve, installed

Umbrella, installed

1¼" Piping, installed

1¼" twin-line Remote Control System, Model TLR 300

1½" Moisture Separator with automatic drain

Wide throat Venturi nozzle, flanged, Tungsten Carbide lined, 3/8" orifice x 6½" long. Model CFSDX-6.

Two-braid Blast Hose, 1¼" I.D. by 50 ft.

Two CQ-3 Brass Quick Couplings (assembled on hose)

MSHA/NIOSH approved Model PCE Air Fed Helmet, complete with belt, breakvalve, 25' of 3/8" I.D. hose, three mylar lenses, and one acetate outer lens.

25 spare acetate outer lenses

25' of 3/8" helmet hose

Model CPF-80 four outlet Air Filter for helmet air supply

25 spare coupling gaskets

MSHA/NIOSH approved Model HCE Helmet Air Conditioner, complete with fittings, temperature valve, quick disconnects, and belt.

One pair of leather gloves

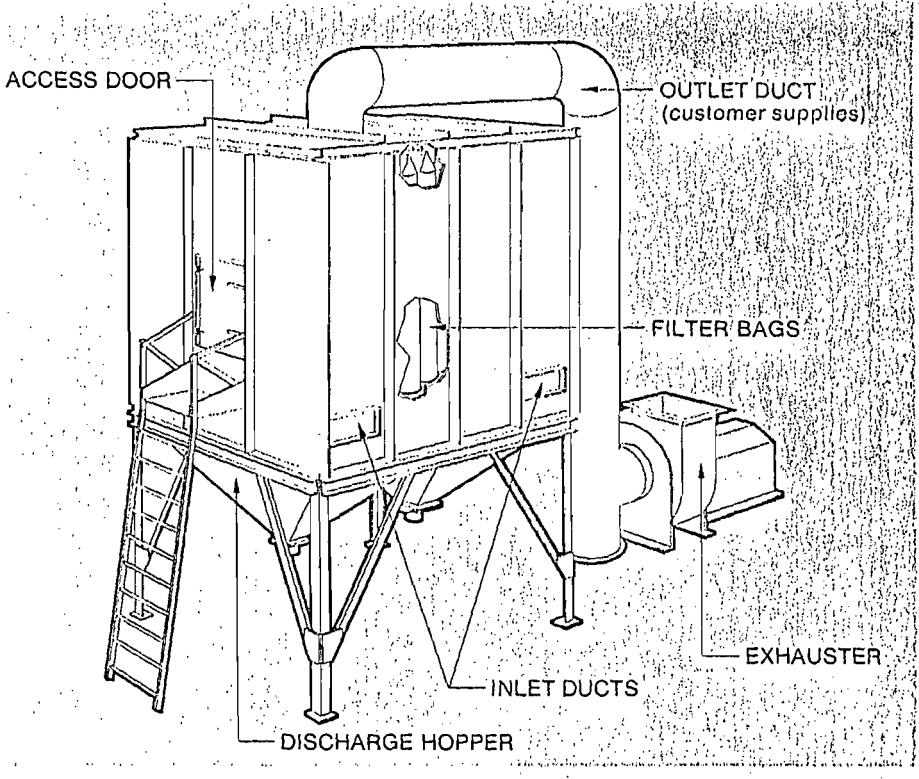
The Clemco Dust Collector

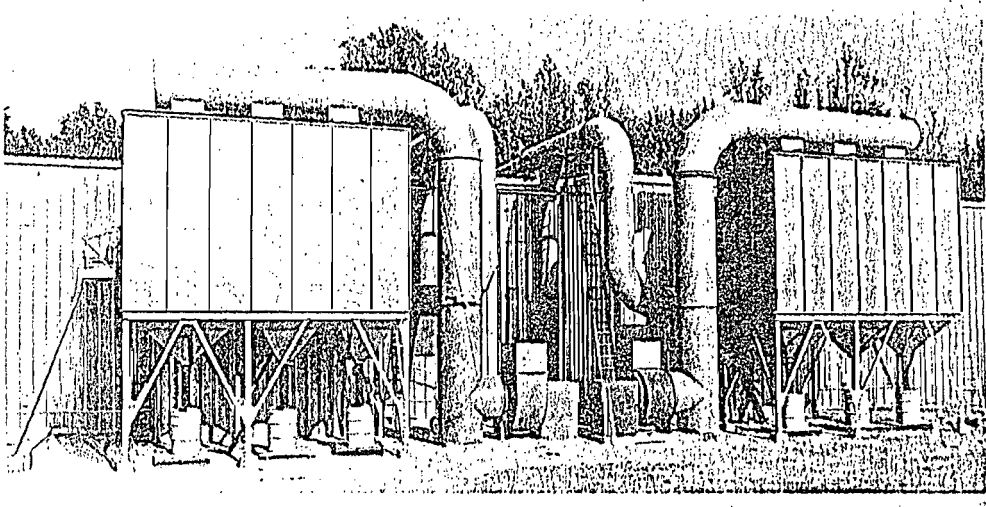
The Clemco dust collector is a dry, fabric-type system which achieves efficiencies of 99% or higher for particles larger than 1.0 micron. In blast facility applications, dry collectors have proven to be far more reliable than the wet type, with considerably fewer maintenance problems. All Clemco dust collectors are weatherproof, and can be installed outdoors. A typical unit is illustrated at the right.

In operation, the exhauster fan on the clean air side of the collector draws dust-laden air from the blast room through the tubular filter bags. Dust collects on the inside of the bags. When the exhauster fan is turned off (during work breaks, lunch, etc.) the bag shaker mechanism automatically reconditions the filters by shaking most of the caked dust from inside the bags into a dust-collecting hopper.

An adjustable timer to control the duration of the bag shaking cycle is standard equipment, as is a manometer to measure the pressure differential across the filter bags. The manometer helps determine the proper shaker timer setting.

Two Model 5040 dust collectors serve the 20′ wide x 20′ high x 100′ long blast facility illustrated to the right. As in all Clemco dust collectors, the inlet ducts from the enclosure connect to the side of the collector, while the outlet ducts to the exhauster come from the top. Ducting is customer-supplied, with Clemco furnishing necessary specifications (size, material, etc.). The access ladder can be mounted on the front or either side of the access platform.





Clemco Dust Collectors

Model Number[1]	C.F.M. Rating	Exhauster Motor	Shaker Motor	Length	Width	Height
1440	4,000 - 5,400	10 h.p.	¾ h.p.	5′0″ (1.5m)	8′0″ (2.4m)	21′11″ (6.7m
2160	5,400 - 8,200	15 h.p.	¾ h.p.	7′6″ (2.3m)	8′0″ (2.4m)	21′11″ (6.7m
2880	8,200 - 10,900	20 h.p.	¾ h.p.	10′0″ (3.0m)	8′0″ (2.4m)	21′11″ (6.7m
3600	10,900 - 13,600	20 h.p.	¾ h.p.	12′6″ (3.8m)	8′0″ (2.4m)	21′11″ (6.7m
4320	13,600 - 16,400	25 h.p.	(2) ¾ h.p.	15′0″ (4.6m)	8′0″ (2.4m)	21′11″ (6.7m
5040	16,400 - 19,000	30 h.p.	(2) ¾ h.p.	17′6″ (5.3m)	8′0″ (2.4m)	21′11″ (6.7m
5760	19,000 - 21,800	40 h.p.	(2) ¾ h.p.	20′0″ (6.1m)	8′0″ (2.4m)	21′11″ (6.7m
6480	21,800 - 24,600	(2) 20 h.p.	(2) ¾ h.p.	22′6″ (6.8m)	8′0″ (2.4m)	21′11″ (6.7m
7200	24,600 - 27,300	(1) 20 h.p. (1) 25 h.p.	(2) ¾ h.p.	25′0″ (7.6m)	8′0″ (2.4m)	21′11″ (6.7m

[1] Model numbers indicate square footage of cloth.

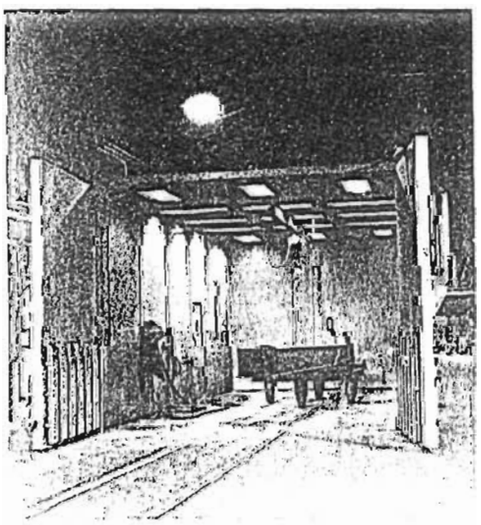
A modular approach solved the blasting problems of a heavy equipment manufacturer who required a 72-foot blast enclosure for large parts on a regular, but not a daily basis, and who also wanted the flexibility and quick loading/unloading of a smaller room. The two blast enclosures of this installation are mounted end to end, so that they form one enclosed unit when the adjacent doors are open, and two separate rooms when these doors are closed.

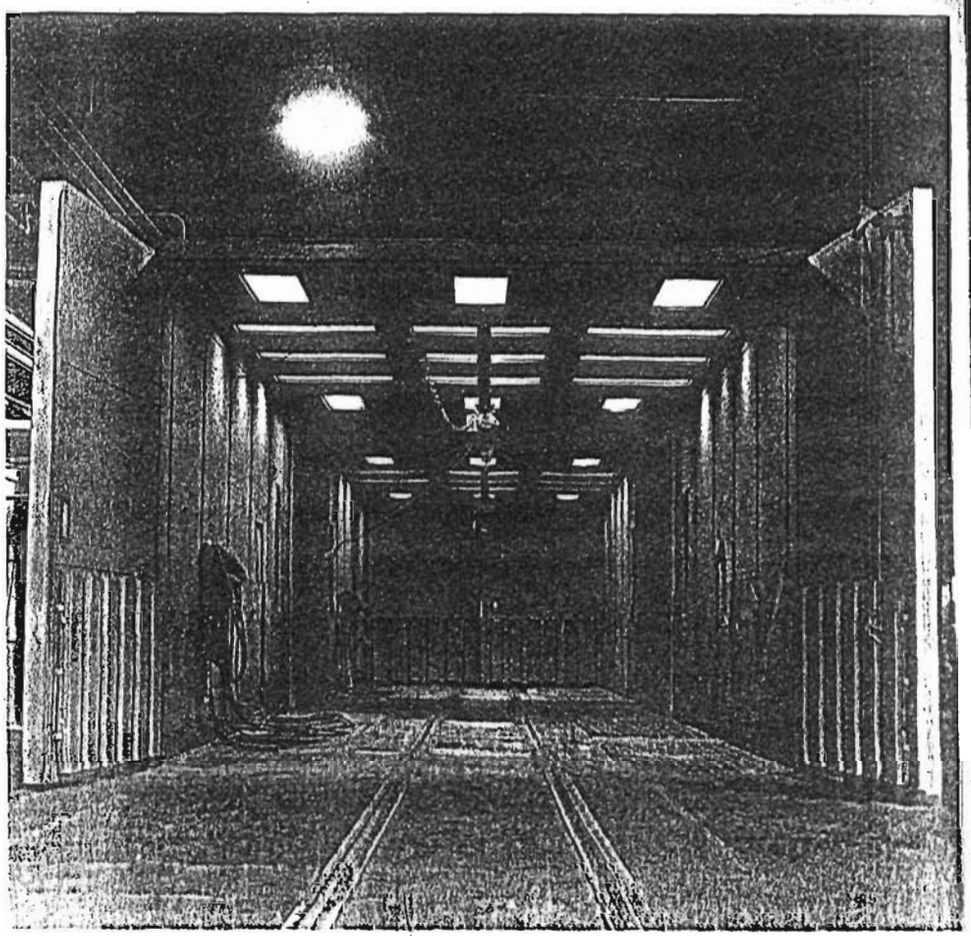
Work cars carry the parts into the rooms for blast cleaning prior to final coating. The rails are set into a concrete slab, flanked on both sides by Flo-Flor®[1] recovery pans for fully automated abrasive recovery. The slab, which supports extremely heavy loads, remains relatively clean during blasting because most of the abrasive ricochets into the pans. What little remains after blasting is blown into the pans.

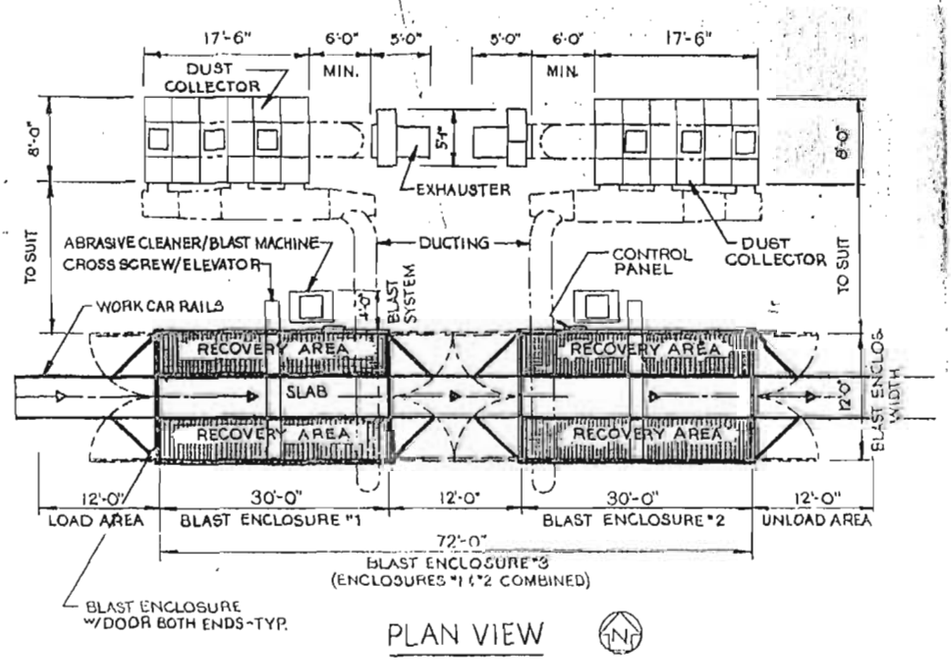
Each module has its own separate blast system consisting of an abrasive cleaner with 10-cubic-foot storage capacity, and a 6-cubic-foot capacity blast machine with remote controls. Each module is served by a dust collector with 5,040 square feet of filter cloth. The installation runs two shifts per day, with two blasters per shift.

Photo below shows room with center doors closed to accommodate smaller parts.

[1]Completely described on pages 12 and 13.



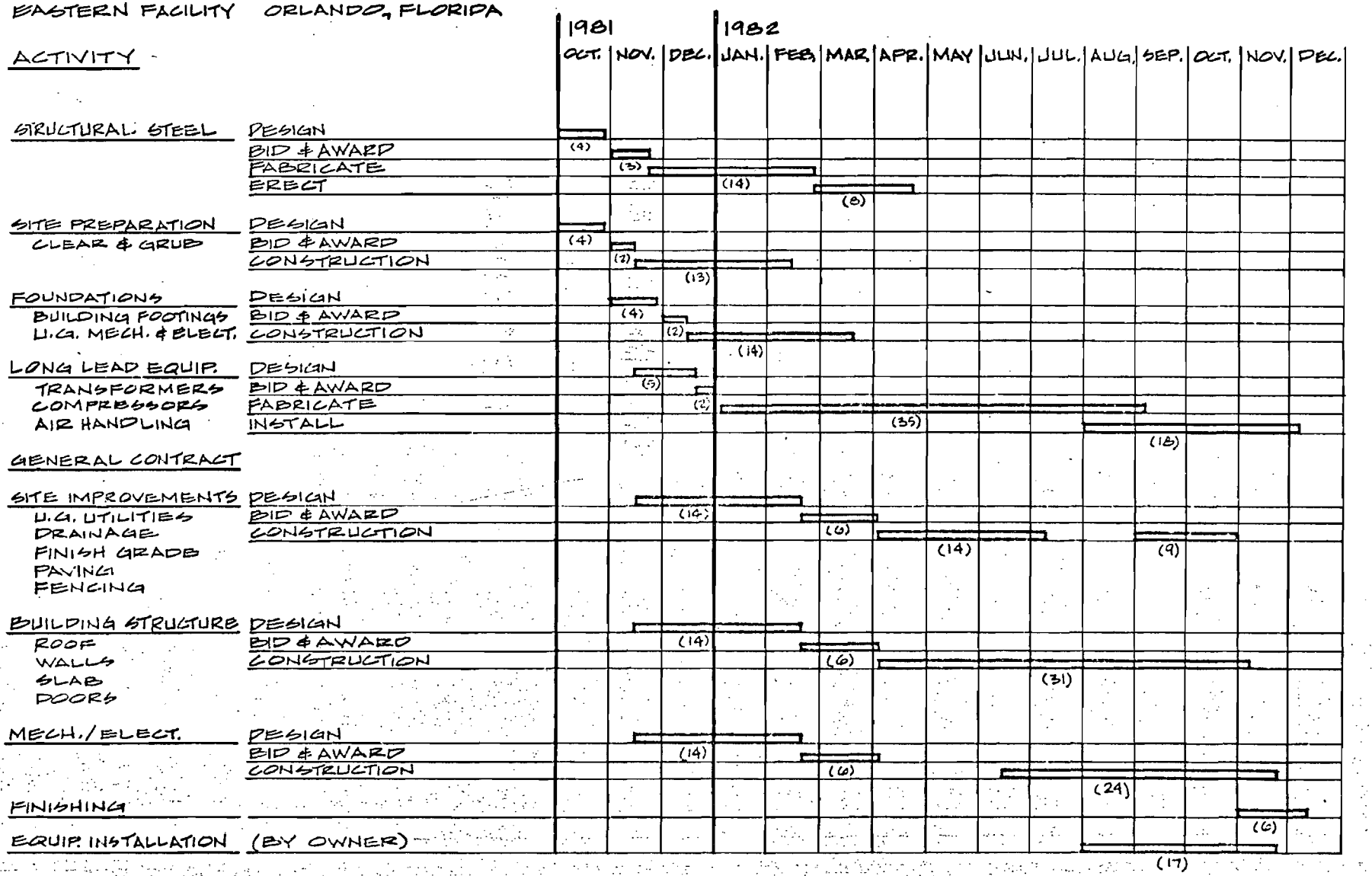


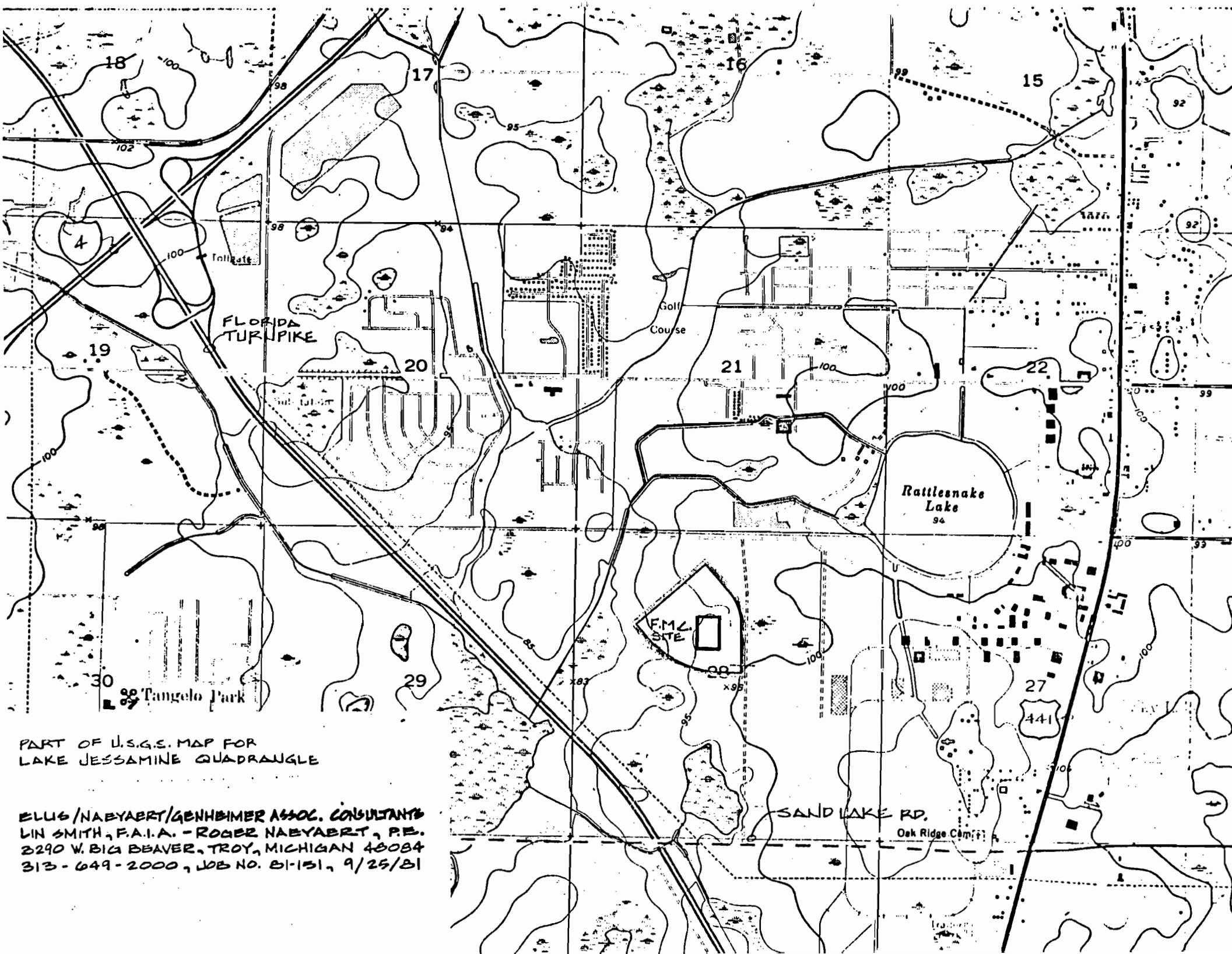


FMC CORPORATION

AIRLINE EQUIPMENT DIVISION
EASTERN FACILITY ORLANDO, FLORIDA

PRELIMINARY SCHEDULE
SEPTEMBER 25, 1981

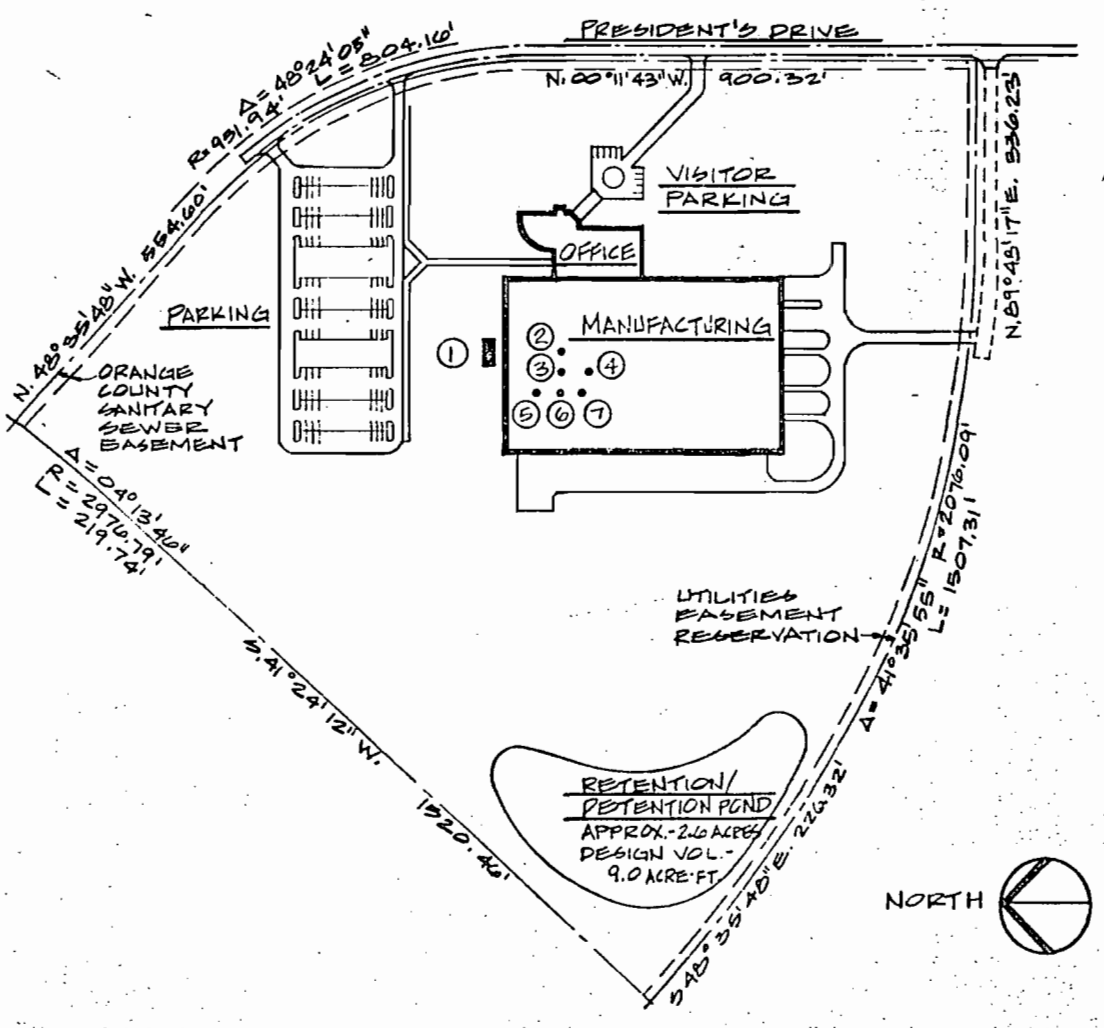




PART OF U.S.G.S. MAP FOR
LAKE JESSAMINE QUADRANGLE

ELLIS/NAEYAERT/GENHEIMER ASSOC. CONSULTANTS
LIN SMITH, F.A.I.A. - ROGER NAEYAERT, P.E.
3290 W. BIG BEAVER, TROY, MICHIGAN 48084
313 - 649 - 2000, JOB NO. 81-151, 9/25/81

APPENDIX F- SITE PLANS



FMC CORPORATION

AIRLINE EQUIPMENT DIVISION
EASTERN FACILITY ORLANDO, FLORIDA

LEGEND

1. UNDERGROUND TANKS
   - 1 - 2000 GAL. GASOLINE
   - 1 - 2000 GAL. DIESEL FUEL
   - 2 - 2000 GAL. HYDRAULIC OIL
   - 1 - 2000 GAL. WASTE OIL
2. PRIME PAINT SPRAY BOOTH EXHAUST
3. PHOSPHATE LINE EXHAUSTS
4. PRIME PAINT DRYING OVEN EXHAUST
5. FINAL PAINT SPRAY BOOTH EXHAUSTS
6. PRIME PAINT SPRAY BOOTH EXHAUSTS
7. GRIT BLAST BOOTH EXHAUST

SITE PLAN

NO SCALE

ELLIS/NAEYAERT/GENHEIMER ASSOC. CONSULTANTS
LIN SMITH, F.A.I.A. - ROGER NAEYAERT, P.E.
3290 W. BIG BEAVER, TROY, MICHIGAN 48084
313-649-2000, JOB NO. 81-151, 9/25/81

FMC Material Handling Group
Chicago

Interoffice

To R. L. Carlson

Date September 4, 1981

cc A. J. Trimble
B. R. van Eck

From W. G. Bush

Subject DELEGATION OF SIGNATURE AUTHORITY
Re: Permitting for New
AED Eastern Facility

In accordance with the February 20, 1981, Resolution of FMC Corporation's Board of Directors regarding signature authority, as Group Manager of FMC's Material Handling Group, which Group includes the Airline Equipment Division (AED), I hereby delegate to you as Manufacturing Manager of AED the authority to sign applications for permits, including environmental permits, and related documents pertaining to permits needed for the new AED eastern facility, presently proposed to be constructed in Orlando, Florida. This delegation is effective until revoked in writing.

W. G. Bush

VV

FMC Airline Equipment Division
San Jose

Interoffice

To R. L. Carlson

Date 9/8/81

cc W. B. Bush
B. R. Van Eck

From A. J. Trimble

Subject DELEGATION OF SIGNATURE AUTHORITY
RE: PERMITTING FOR NEW
AED EASTERN FACILITY

In accordance with the February 10, 1981 Resolution of FMC Corporation's Board of Directors regarding signature authority, as Division Manager of FMC's Airline Equipment Division, I hereby delegate you as Manufacturing Manager of AED the authority to sign applications for permits, including environmental permits, and related documents pertaining to permits needed for the new AED eastern facility, presently proposed to be constructed in Orlando, Florida. This delegation is effective until revoked in writing.

A. J. Trimble
Division Manager

gh

FMC CORPORATION

Resolution

RESOLVED, that the Board of Directors of FMC Corporation (the "Corporation") hereby grants the following signature authority:

1. Officers. The Chairman of the Board, the President, any Vice President, the Secretary, the Treasurer and the Controller of the Corporation are each authorized, in that capacity, to execute, and to delegate to any person authority to execute, all written instruments whatsoever including, without limitation, deeds, leases, agreements, bids, contracts, bonds, powers of attorney and proxies;

2. Group Managers. Each person employeed by the Corporation as a Group Manager is authorized, in that capacity, to execute, and to delegate to persons employed in his Group authority to execute, all written instruments whatsoever pertaining to matters which are in the ordinary course of the business of the Group;

3. Division Managers. Each person employed by the Corporation as a Division Manager is authorized, in that capacity, to execute, and to delegate to persons employed in his Division authority to execute, all written instruments whatsoever pertaining to matters which are in the ordinary course of the business of the Division;

provided, that any delegation of signature authority pursuant to this resolution shall be (i) effective only if in writing and when filed with the Secretary of the Corporation, (ii) limited as set forth in said delegation and (iii) effective on the date appearing thereon for the period specified therein or if no period is specified until revoked in writing; and provided, further, that any person may rely on a certificate signed by the Secretary or any Assistant Secretary of the Corporation to the effect that a particular person has specified signature authority pursuant to this resolution; and

RESOLVED, FURTHER, that the foregoing resolution supersedes the resolution relating to general signature authority adopted on June 24, 1977, provided that any exercise of signature authority pursuant to a delegation before the adoption of this resolution is hereby ratified and approved.

AC 48-48486

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

OCT 1981 REC'D BUREAU A Q M

SOURCE TYPE: Manufacturing [X] New[1] [ ] Existing[1]

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

COMPANY NAME: FMC Corp. Airline Equipment Division COUNTY: Orange

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

SOURCE LOCATION: Street Presidents Drive City Orlando

UTM: East North

Latitude 28 o 27 ' 43 "N Longitude 81 o 24 ' 39 "W

APPLICANT NAME AND TITLE: Mr. Al J. Trimble Airline Equipment Division Manager

APPLICANT ADDRESS: 1115 Coleman Avenue Box 145 San Jose, California 95103

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of FMC Corporation

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

*Attach letter of authorization

Signed: A J Trimble

Al J. Trimble Airline Equip. Div. Mgr.
Name and Title (Please Type)

Date: 10-6-81 Telephone No. 408-289-3194

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

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed: Joseph L. Tessitore

Joseph L. Tessitore, P. E.
Name (Please Type)

(Affix Seal)

JOSEPH L. TESSITORE CERTIFICATE NO. 23374 STATE OF FLORIDA REGISTERED ENGINEER

Cross/Tessitore & Associates, P. A.
Company Name (Please Type)

1611 E. Hillcrest St. Orlando, FL 32803
Mailing Address (Please Type)

Florida Registration No. 023374 Date: 10-6-81 Telephone No. 305/898-6140

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

SECTION II: GENERAL PROJECT INFORMATION

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

See Attachment A

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

Start of Construction January 1982 Completion of Construction January 1983

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

None

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

None

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

F. Normal equipment operating time: hrs/day 4 ; days/wk 5 ; wks/yr 52 ; if power plant, hrs/yr ___ ;

if seasonal, describe: ___

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

1. Is this source in a non-attainment area for a particular pollutant? yes
   a. If yes, has "offset" been applied? no
   b. If yes, has "Lowest Achievable Emission Rate" been applied? no
   c. If yes, list non-attainment pollutants.

      Volatile Organic Compounds

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. no
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirements apply to this source? If yes, see Sections VI and VII. no
4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? no
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? no

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

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Solvent	VOC	99+%	1764 Gal/yr — Purchase	
(Chevron 325)				

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

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
VOC	5.53	2.88			5.53	2.88	

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

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

[1] See Section V, Item 2.

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

[3] Calculated from operating rate and applicable standard

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

[5] If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

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

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

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

882 gallons per year of waste solvent will be sold or hauled away.

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

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

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

Water Vapor Content: _____ % Velocity: _____ FPS

SECTION IV: INCINERATOR INFORMATION

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

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

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

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

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

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

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

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration

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

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

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

10. Stack Parameters

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

c. Flow Rate: ACFM d. Temperature: °F

e. Velocity: FPS

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

1.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy*: h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

2.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy**: h. Maintenance Costs:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

*Explain method of determining efficiency.

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

3.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above.

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

F. Describe the control technology selected:

1. Control Device:

2. Efficiency*:

3. Capital Cost:

4. Life:

5. Operating Cost:

6. Energy:

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

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

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

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

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

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

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

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

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location) _____

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

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

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

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

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

E. Emission Data Used in Modeling

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

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

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

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

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

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

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

Attachment A

FMC is planning to build a 200,000 sq. ft. manufacturing facility in the Orlando Central Park, Orlando, FL to fabricate airplane loaders (see attached photo). Chart 1 shows how the components and structural steel are welded, cleaned, painted, and combined to make a finished product. Hydraulic tubing is used throughout the loaders. After the fittings are attached the tubing is cleaned to remove metal chips.

Hydraulic Tube Cleaner

The hydraulic tube cleaner is a metal box 20 ft. long, 4 ft. high and 4 ft. wide. Solvent is pumped from a 55 gal. container and forced thru the tubing, finally drained back into the 55 gal. container.

The solvent is Chevron 325 or equivalent:

98% parafins
2% Aromatics C8+
<0.1% Benzene
Specific gravity 0.78
Volatiles 99+
Volatility 5 millimeters of mercury @ $77^{\circ}F$

1764 gallons per year of solvent are used. Half or 882 gals/yr evaporate and the other half which is contaminated and soil ladden is hauled away.

This operation is regulated by Florida Air Pollution Regulation 17-2.16 Solvent metal cleaning. Although the solvent has a low volatility, the cleaner will be equipped with a cover at the operating end, and cleaned parts allowed to drain before removing.

Emission Calculations

Assume 50% or 882 gal/yr of solvent evaporate operation 1,040 hrs/yr.

$$882/1040 = .85 \text{ gal/hr}$$

$$(.85 \text{ gal})(.13368 \text{ ft}^3/\text{gal}) = .1136 \text{ ft}^3$$

$$(.1136 \text{ ft})(62.4 \text{ lbs/ft})(.78) = 5.53 \text{ lbs/hr}$$

$$\frac{(5.53 \text{ lbs/hr})(1040 \text{ hr/yr})}{2000 \text{ lbs/ton}} = 2.88 \text{ tons/yr}$$

H59A5
BH61

FMC

Model JC/PL-2
Container/Pallet Loader

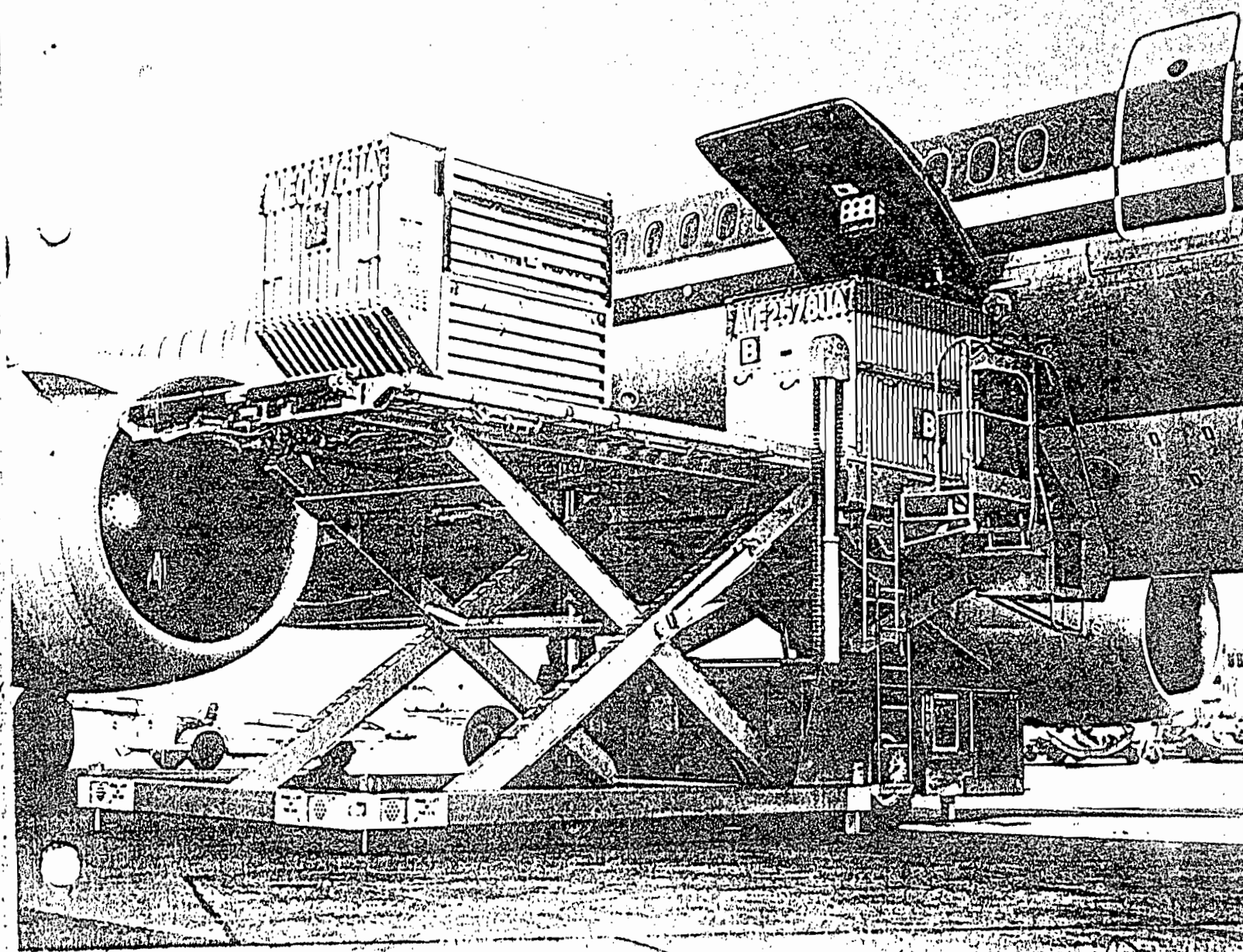
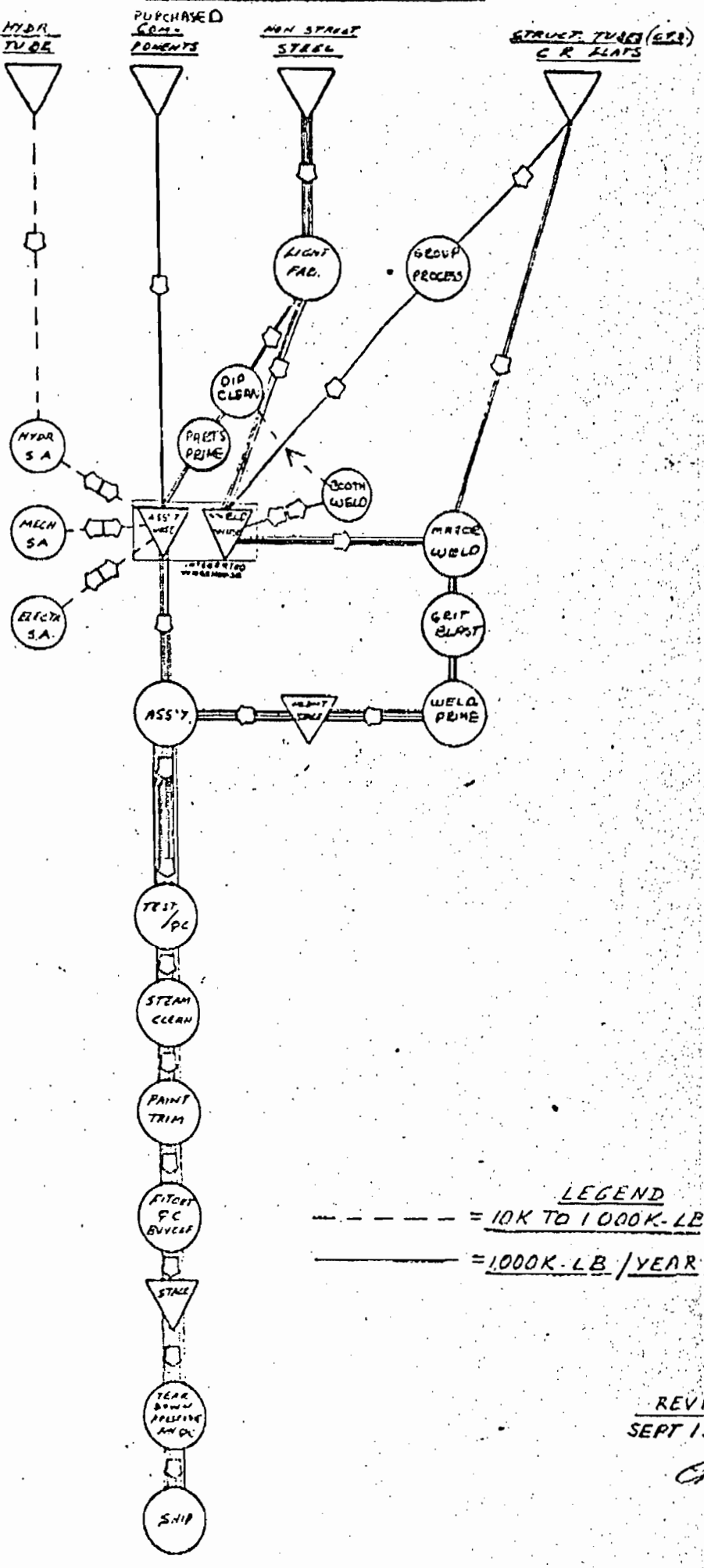


CHART 1

EASTERN PLANT
PROPOSED MAJOR PROCESS FLOW
1985 LOADER PRODUCTION ONLY



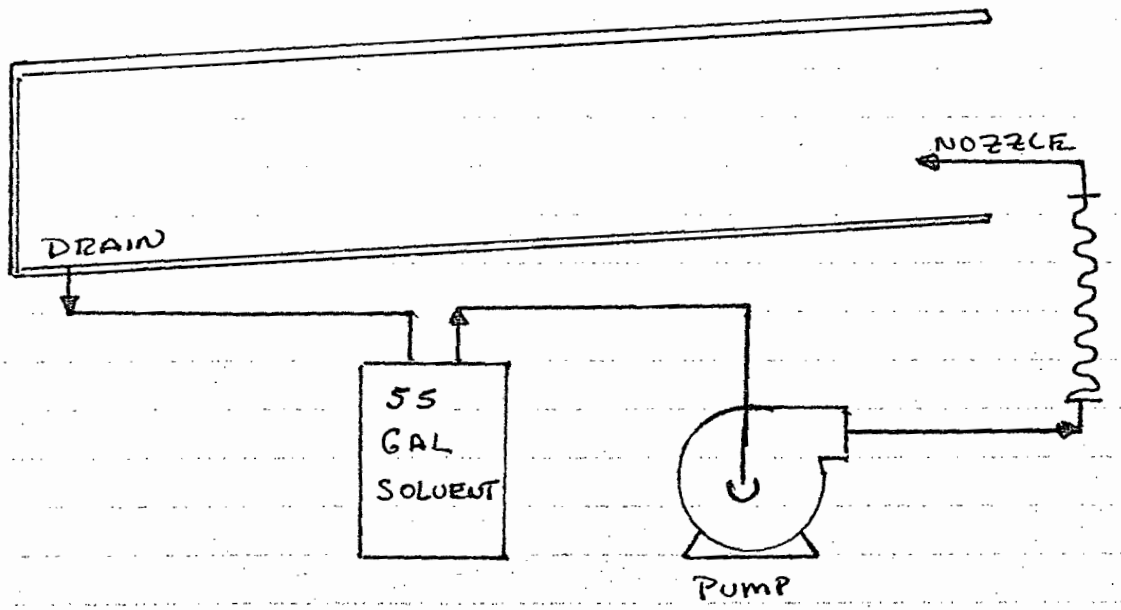
LEGEND

- - - - - - = 10K TO 1000K-LB/YEAR

——— = 1000K-LB/YEAR

REVISION #4
SEPT 15 1981

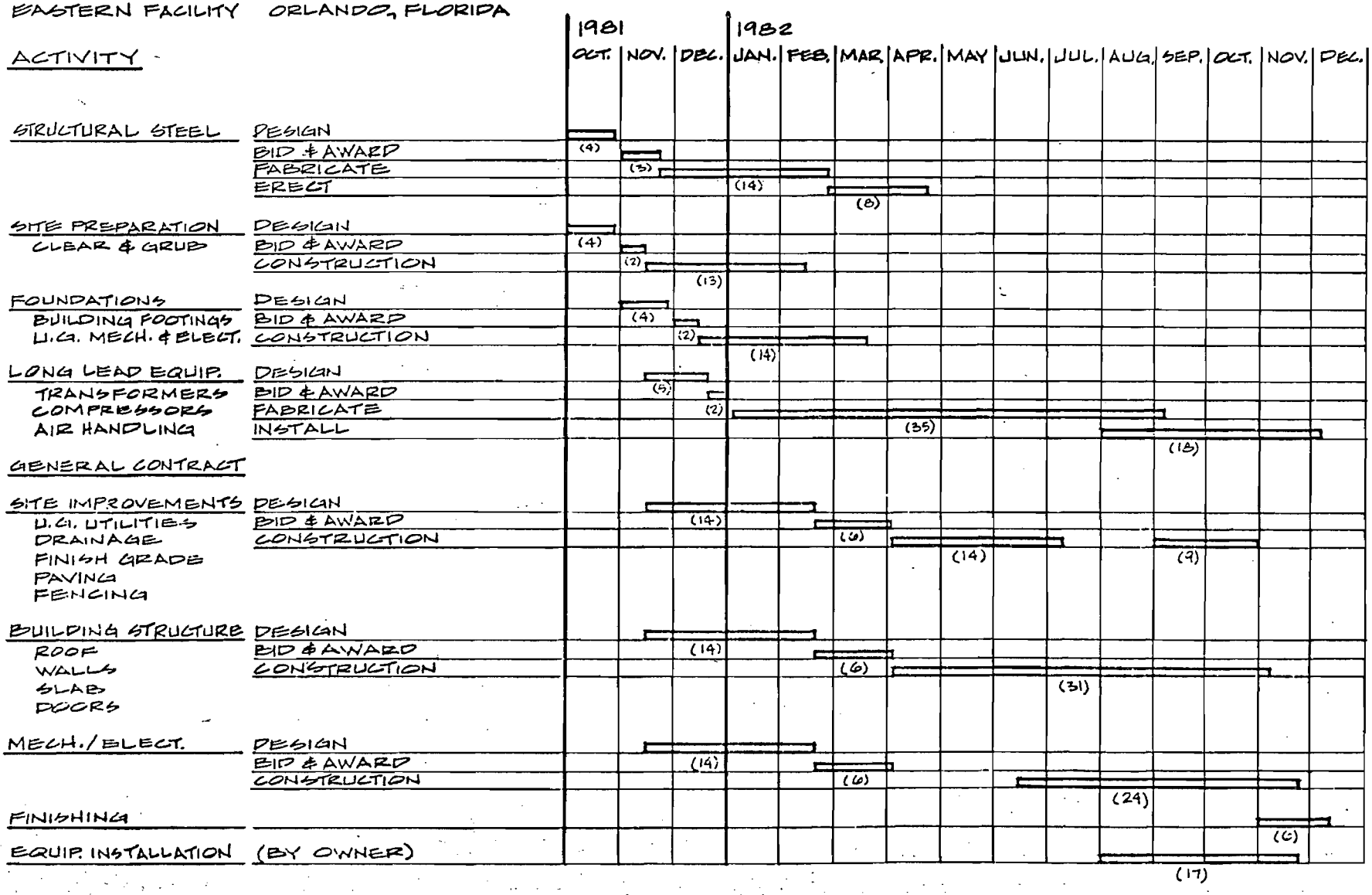
HYDRAULIC TUBE CLEANER

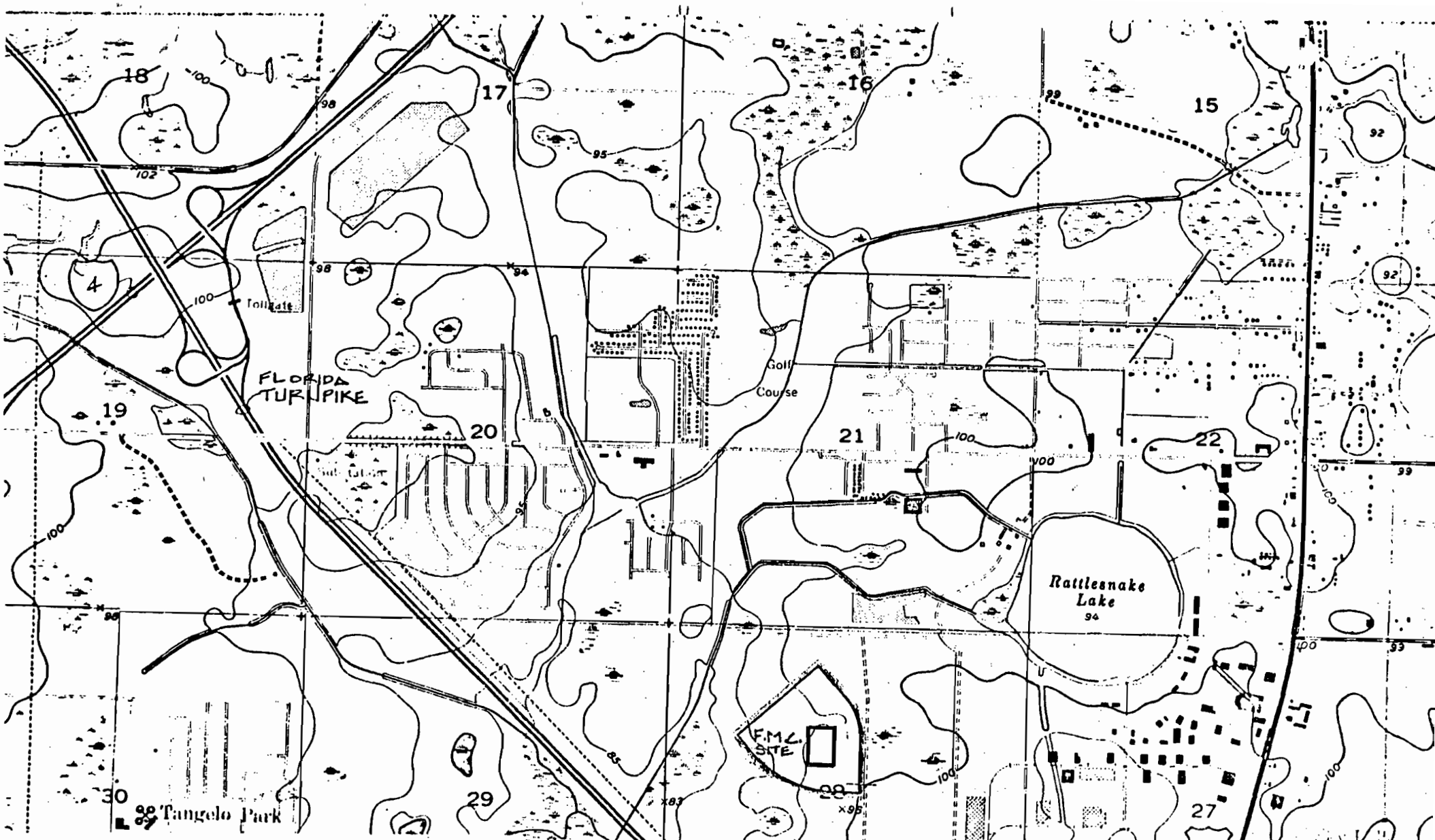


FMC CORPORATION

AIRLINE EQUIPMENT DIVISION
EASTERN FACILITY ORLANDO, FLORIDA

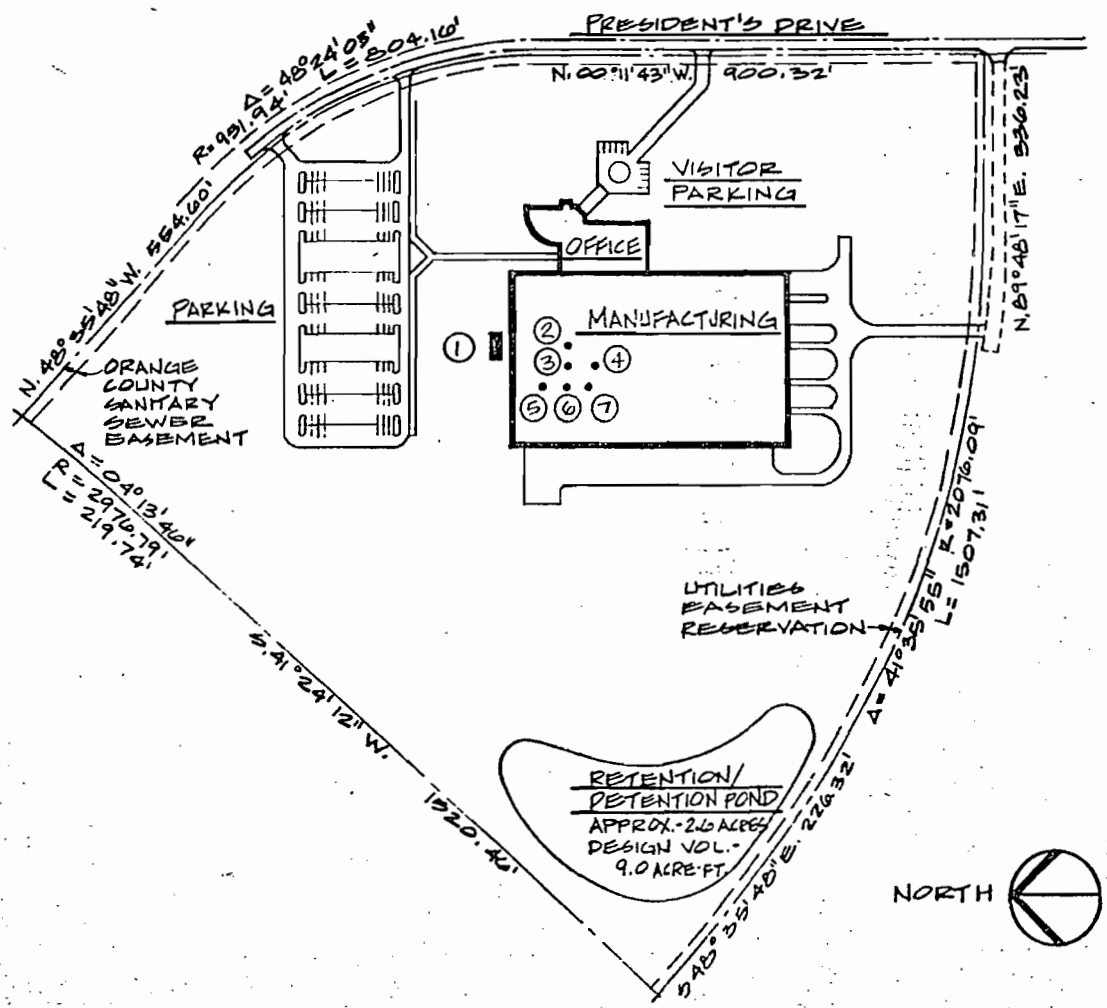
PRELIMINARY SCHEDULE
SEPTEMBER 25, 1981





PART OF U.S.G.S. MAP FOR
LAKE JESSAMINE QUADRANGLE

ELLIS/NABYABERT/GENHEIMER ASSOC. CONSULTANTS
LIN SMITH, F.A.I.A. - ROGER NABYABERT, P.E.
3290 W. BIG BEAVER, TROY, MICHIGAN 48084
313-649-2000, JOB NO. 81-151, 9/25/81



FMC CORPORATION

AIRLINE EQUIPMENT DIVISION
EASTERN FACILITY ORLANDO, FLORIDA

LEGEND

1. UNDERGROUND TANKS
   - 1 - 2000 GAL. GASOLINE
   - 1 - 2000 GAL. DIESEL FUEL
   - 2 - 2000 GAL. HYDRAULIC OIL
   - 1 - 2000 GAL. WASTE OIL
2. PRIME PAINT SPRAY BOOTH EXHAUST
3. PHOSPHATE LINE EXHAUSTS
4. PRIME PAINT DRYING OVEN EXHAUST
5. FINAL PAINT SPRAY BOOTH EXHAUSTS
6. PRIME PAINT SPRAY BOOTH EXHAUSTS
7. GRIT BLAST BOOTH EXHAUST

SITE PLAN

NO SCALE

ELLIS/NAEYAERT/GENHEIMER ASSOC. CONSULTANTS
LIN SMITH, F.A.I.A. - ROGER NAEYAERT, P.E.
3290 W. BIG BEAVER, TROY, MICHIGAN 48084
313 - 649 - 2000, JOB NO. 81-151, 9/25/81

FMC Material Handling Group
Chicago

Interoffice

To R. L. Carlson

Date September 4, 1981

cc A. J. Trimble
B. R. van Eck

From W. G. Bush

Subject DELEGATION OF SIGNATURE AUTHORITY
Re: Permitting for New
AED Eastern Facility

In accordance with the February 20, 1981, Resolution of FMC Corporation's Board of Directors regarding signature authority, as Group Manager of FMC's Material Handling Group, which Group includes the Airline Equipment Division (AED), I hereby delegate to you as Manufacturing Manager of AED the authority to sign applications for permits, including environmental permits, and related documents pertaining to permits needed for the new AED eastern facility, presently proposed to be constructed in Orlando, Florida. This delegation is effective until revoked in writing.

W. G. Bush

VV

FMC Airline Equipment Division
San Jose

Interoffice

To R. L. Carlson

Date 9/8/81

cc W. B. Bush
B. R. Van Eck

From A. J. Trimble

Subject DELEGATION OF SIGNATURE AUTHORITY
RE: PERMITTING FOR NEW
AED EASTERN FACILITY

In accordance with the February 10, 1981 Resolution of FMC Corporation's Board of Directors regarding signature authority, as Division Manager of FMC's Airline Equipment Division, I hereby delegate you as Manufacturing Manager of AED the authority to sign applications for permits, including environmental permits, and related documents pertaining to permits needed for the new AED eastern facility, presently proposed to be constructed in Orlando, Florida. This delegation is effective until revoked in writing.

A. J. Trimble
Division Manager

gh

FMC CORPORATION

Resolution

RESOLVED, that the Board of Directors of FMC Corporation (the "Corporation") hereby grants the following signature authority:

1. Officers. The Chairman of the Board, the President, any Vice President, the Secretary, the Treasurer and the Controller of the Corporation are each authorized, in that capacity, to execute, and to delegate to any person authority to execute, all written instruments whatsoever including, without limitation, deeds, leases, agreements, bids, contracts, bonds, powers of attorney and proxies;

2. Group Managers. Each person employeed by the Corporation as a Group Manager is authorized, in that capacity, to execute, and to delegate to persons employed in his Group authority to execute, all written instruments whatsoever pertaining to matters which are in the ordinary course of the business of the Group;

3. Division Managers. Each person employed by the Corporation as a Division Manager is authorized, in that capacity, to execute, and to delegate to persons employed in his Division authority to execute, all written instruments whatsoever pertaining to matters which are in the ordinary course of the business of the Division;

provided, that any delegation of signature authority pursuant to this resolution shall be (i) effective only if in writing and when filed with the Secretary of the Corporation, (ii) limited as set forth in said delegation and (iii) effective on the date appearing thereon for the period specified therein or if no period is specified until revoked in writing; and provided, further, that any person may rely on a certificate signed by the Secretary or any Assistant Secretary of the Corporation to the effect that a particular person has specified signature authority pursuant to this resolution; and

RESOLVED, FURTHER, that the foregoing resolution supersedes the resolution relating to general signature authority adopted on June 24, 1977, provided that any exercise of signature authority pursuant to a delegation before the adoption of this resolution is hereby ratified and approved.

AC 48-48487

OCT 1981 BUREAU A Q M

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Manufacturing [X] New[1] [ ] Existing[1]

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

COMPANY NAME: FMC Corp, Airline Equipment Division COUNTY: Orange

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) small parts spray booth, large weldments spray booth, finishing booth

SOURCE LOCATION: Street President's Drive City Orlando

UTM: East _____ North _____

Latitude 28 ° 27 ' 43 "N Longitude 81 ° 24 ' 39 "W

APPLICANT NAME AND TITLE: Mr. Al J. Trimble Airline Equipment Division Manager

APPLICANT ADDRESS: 1115 Colemen Avenue Box 145 San Jose, California 95103

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of FMC Corporation

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

*Attach letter of authorization

Signed: A J Trimble

Al J. Trimble Airline Equip. Div. Mgr.
Name and Title (Please Type)

Date: 10-6-81 Telephone No. 408-289-3194

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

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed: Joseph L. Tessitore

Joseph L. Tessitore, P.E.
Name (Please Type)

(Affix Seal)

JOSEPH L. TESSITORE CERTIFICATE NO. 23374 STATE OF FLORIDA

Cross/Tessitore & Associates, P. A.
Company Name (Please Type)

1611 E. Hillcrest St. Orlando, FL 32803
Mailing Address (Please Type)

Florida Registration No. 23374 Date: 10-6-81 Telephone No. 408-289-3194

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

SECTION II: GENERAL PROJECT INFORMATION

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

see attachment A

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

Start of Construction January 1982 Completion of Construction January 1983

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

See attachment B

6 electrostatic paint guns at $7000 each

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

None

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

F. Normal equipment operating time: hrs/day 16 ; days/wk 5 ; wks/yr 52 ; if power plant, hrs/yr ____ ;

if seasonal, describe: ____

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

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

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

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
High-solids primer	VOC	3.51b/gal	4.80	
High-solids alkyd	VOC	3.51b/gal	2.17	
Conventional	VOC	4.211b/gal	4.38	
Thinners	VOC	100%	0.74	

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

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
VOC	4.48	8.96		5.17	11.88	23.76	

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

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

[1]See Section V, Item 2.

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

[3]Calculated from operating rate and applicable standard

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

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/ga'

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

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

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

Paint booth water will be treated on site or hauled away

Paint booth sludge will be sent to a landfill

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack): Stack 1/Stack 2/Stack 3

Stack Height: 40/40/40 ft. Stack Diameter: 4/ 2.83/ 4 ft.

Gas Flow Rate: 30,000/100,800/120,000 ACFM Gas Exit Temperature: Ambient °F.

Water Vapor Content: _____ % Velocity: 40/67/40 FPS

Stack 1: Small parts spray both

Stack 2: Large weldments spray booth with 4 stacks

Stack 3: Finishing booth with 4 stacks

SECTION IV: INCINERATOR INFORMATION

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

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

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

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

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

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

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

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration

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

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

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

10. Stack Parameters

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

c. Flow Rate: ACFM d. Temperature: °F

e. Velocity: FPS

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

1.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy*: h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

2.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy**: h. Maintenance Costs:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

*Explain method of determining efficiency.

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

3.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above.

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

F. Describe the control technology selected:

1. Control Device:

2. Efficiency*:

3. Capital Cost:

4. Life:

5. Operating Cost:

6. Energy:

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

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

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

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

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

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

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

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

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

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

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ___/___/___ (month day year) to ___/___/___ (month day year)

2. Surface data obtained from (location) _____

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

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

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

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

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

E. Emission Data Used in Modeling

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

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

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

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

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

Attachment A

FMC is planning to build a 200,000 sq. ft. manufacturing facility in the Orlando Central Park, Orlando, Florida, to fabricate airplane loaders (see attached photo, Appendix A). Chart 1 shows how the components and structural steel are welded, cleaned, painted, and combined to make a finished product. Chart 2 shows the operations involved in metal cleaning and painting. The painting system will involve three paint booths.

The VOC emissions from this facility are subject to Chapter 17-2 of the Florida Administrative Code, Air Pollution. Regulations 17-2-16 for Surface Coating of Miscellaneous Metal Parts and Products require compliance by either the application of low solvent coating technology; or incineration. Because of the size of the final product, incineration would involve treating approximately 250,000 SCFM. Vendors have indicated that such a control system would require at least 2.2 million dollars for equipment and millions a year in energy cost. (See Appendix B).

FMC has been actively involved in the development of low solvent coatings. Appendix C outlines our work to date. A low solvent coating system that will comply with the 3.5 lbs. of VOC/gallon regulation in all the necessary colors is not available. Appendix D is a series of communications with paint manufacturers on this subject.

The conventional acrylic paint systems that FMC uses in its existing facilities would emit 47,515 lbs./yr. of VOC if utilized at the proposed plant. A low solvent system utilizing a complying paint would emit 20,691 lbs./yr. (See Table 1). Section 17-2.16 (5) allows the use of alternate means to abate volatile organic emissions, if such alternative will result in emissions equal to or lower than would result from the application of emission limiting standards.

Since a complying low-solvent system is not available at this time in all the required colors, FMC proposes to improve the method of application such that the total VOC emissions will be less than a complying system. We propose to do this by improving transfer efficiency thru the use of electrostatic spray guns. Electrostatic spray guns will give 75% transfer efficiency vs 55% for conventional application. Although the VOC content of the paint will be higher than desired, the total emissions will be less since less paint will be required. Table 2 shows that in 1982 this facility will emit 17,915 lbs. of VOC per year thru the use of electrostatic spray guns and low-solvent coatings where available. Manufacturers indicate that low solvent technology for all colors should be available in 1984. FMC will replace the use of conventional acrylic

paint with hi-solids alkyd as it becomes available while retaining the use of improved transfer efficiency. By 1984 the paint system at the facility will emit 12,597 lbs. of VOC per year.

Chart 3 graphically compares the VOC emissions for this proposed facility utilizing conventional, complying, and the proposed 1982 and 1984 coating systems.

The calculations used for this permit application are based on full production. However, the facility will not reach full production until 1984. Chart 4 shows full production at 308 loaders/yr. 1982 production is planned for 24 loaders and 1983 for 248 loaders. Therefore, the actual VOC emissions, during that period when high-solid paints will not be available in all colors, will be less than that applied for.

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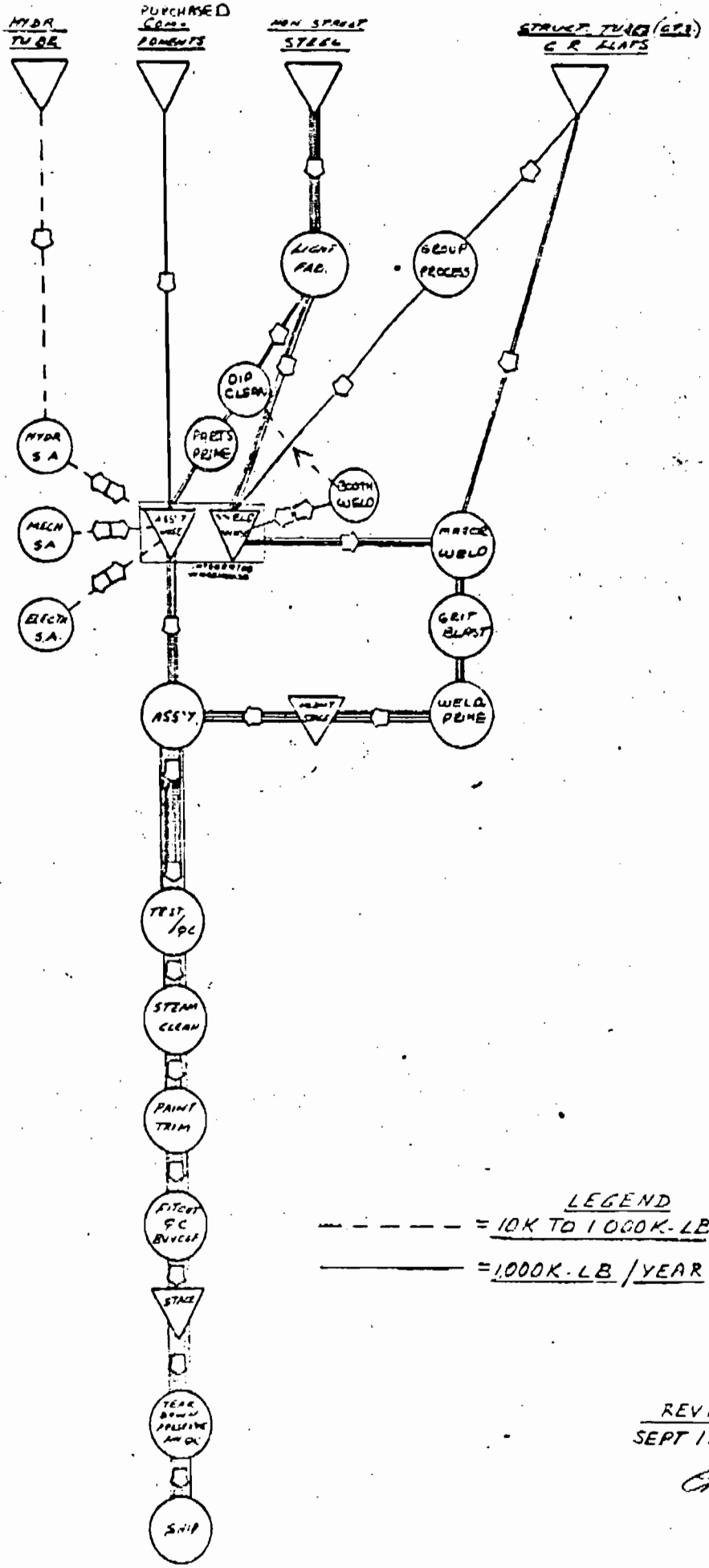
ka61

CHART 1

EASTERN PLANT
PROPOSED MAJOR PROCESS FLOW
1985 LOADER PRODUCTION ONLY



LEGEND

– – – – – = 10K TO 1000K-LB/YEAR

——— = 1000K-LB/YEAR

REVISION # 4
SEPT 15 1981

Proposed Finishing Procedure

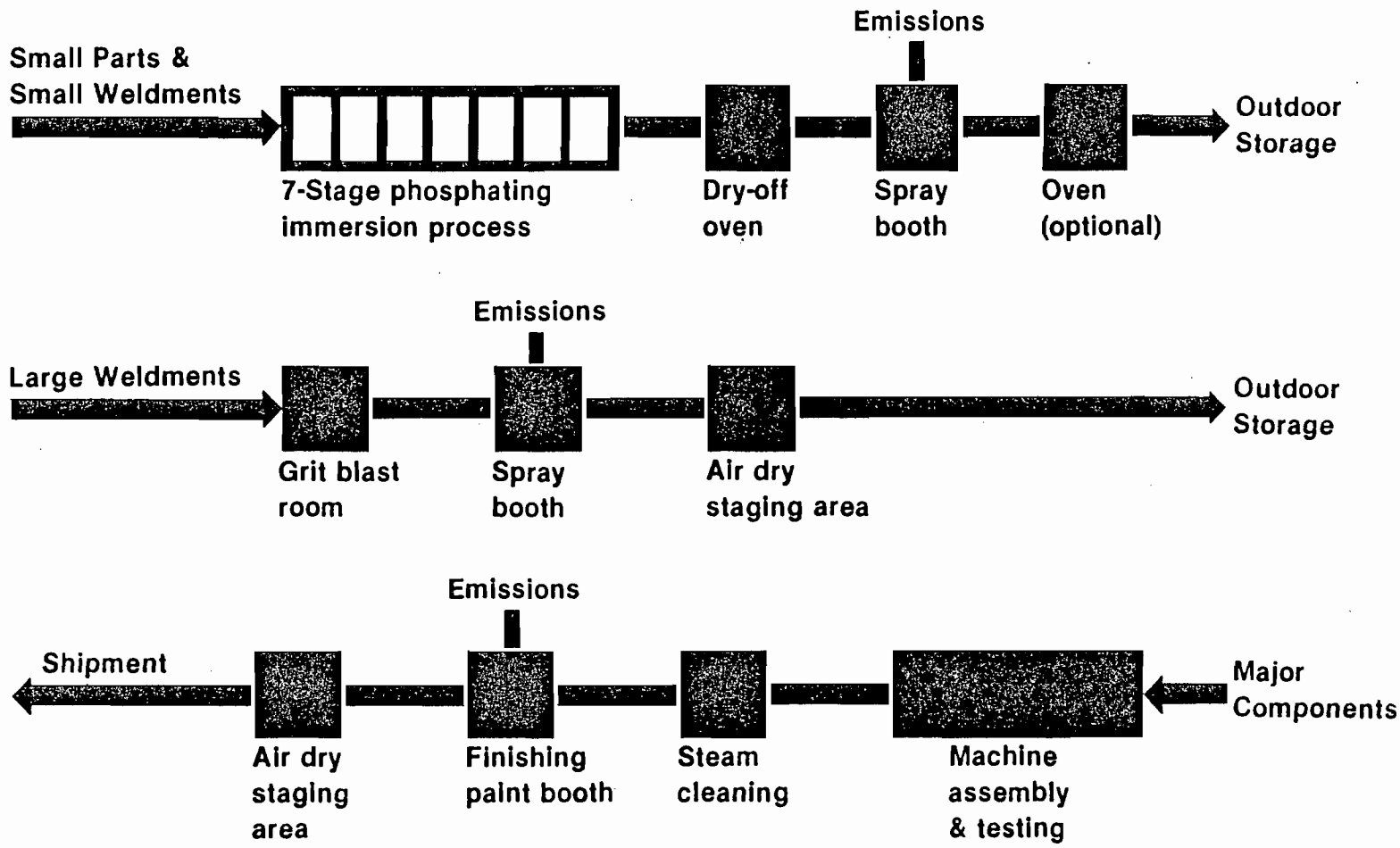


TABLE 1

Proposed Coating System For Orlando Plant

Coating System	Current System, 1981			Hypothetical Compliant System, 1982		
	Type of Paint	VOC #/gal	Emissions #/yr	Type of Paint	VOC #/gal	Emission #/yr
Priming of small parts & weldments	Conventional Alkyd	3.97	16,261	Hi-Solids Alkyd	3.5	10,234
Thinners added to primer	—	7.5	7,680	N/A	Nil	Nil
Touch-up priming of machines	Conventional Alkyd	3.97	1,223	Hi-Solids Alkyd	3.5	770
Thinners added to primer	—	7.5	578	N/A	Nil	Nil
Finishing:						
White, grey, blue	Conventional Acrylic	4.21	6,025	Hi-Solids Alkyd	3.5	3,873
Custom colors	Conventional Acrylic	4.21	9,039	Hi-Solids Alkyd	3.5	5,814
Thinners added to enamel	—	7.5	6,709	N/A	Nil	Nil
Total Emissions #/yr			47,515			20,691

TABLE 2

Proposed Coating Systems To Reduce Emissions

Coating System	Hypoth. Compliant System, 1982			Proposed System Using Eng. Controls 1982			1984		
	Type of Paint	VOC #/gal	Emissions #/yr	Type of Paint	VOC #/gal	Emissions #/yr	Type of Paint	VOC #/gal	Emissions #/yr
Priming of small parts & weldments	Hi-Solids Alkyd	3.5	10,234	Hi-Solids Alkyd	3.5	4,723	Hi-Solids Alkyd	3.5	4,723
Thinners added to primer	—	—	—	—	—	—	—	—	—
Touch-up priming of machines	Hi-Solids Alkyd	3.5	770	Hi-Solids Alkyd	3.5	770	Hi-Solids Alkyd	3.5	770
Thinners added to primer	—	—	—	—	—	—	—	—	—
Finishing:									
White, grey, blue	Hi-Solids Alkyd	3.5	3,873	Hi-Solids Alkyd	3.5	2,840	Hi-Solids Alkyd	3.5	2,840
Custom colors	Hi-Solids Alkyd	3.5	5,814	Conv. Acrylic	4.21	6,628	Hi-Solids Alkyd	3.5	4,264
Thinners added to enamel	—	—	—	—	7.5	2,954	—	—	—
Total Emissions #/yr			20,691			17,915			12,597

Summary of VOC Emissions

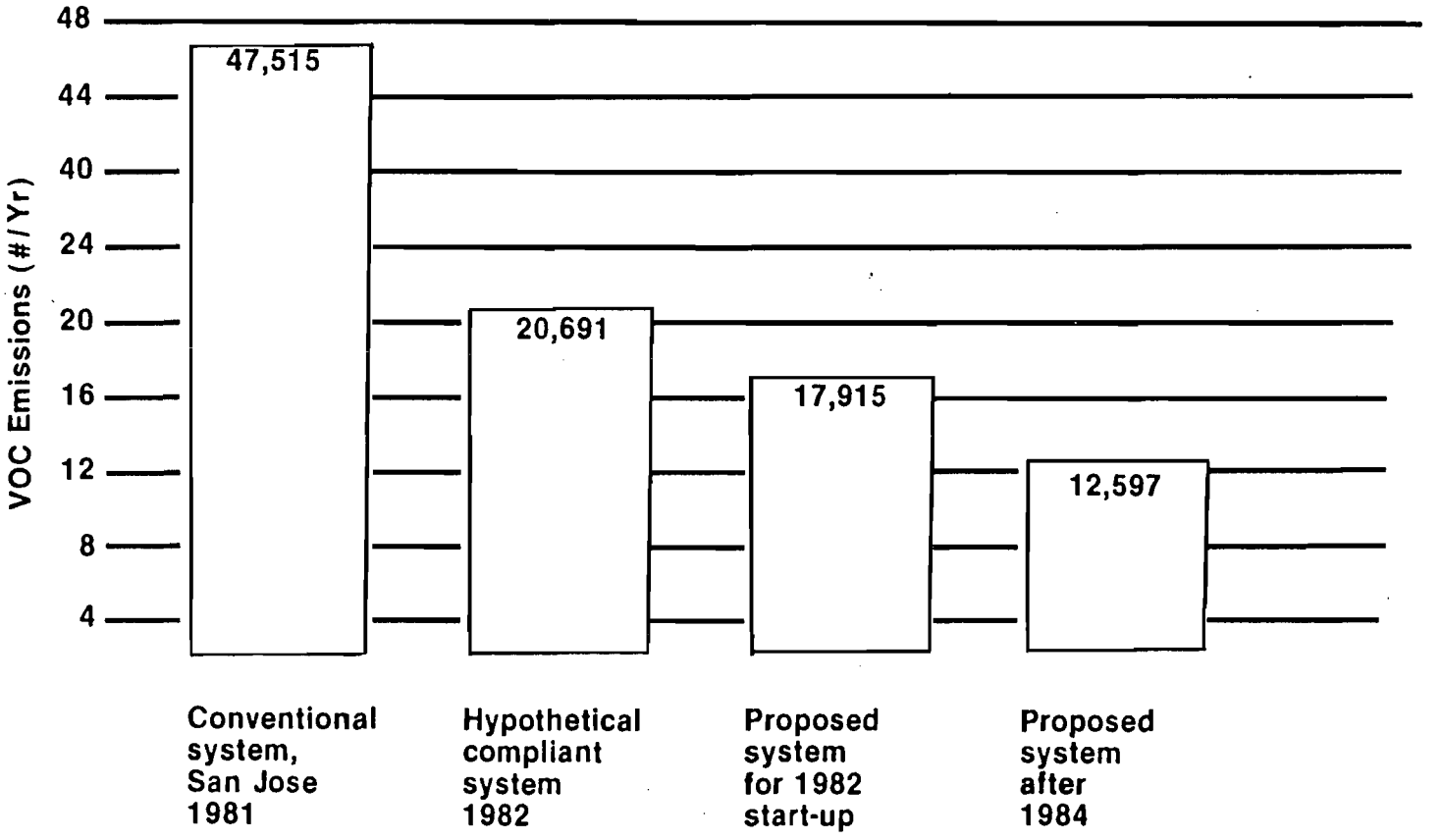


CHART 4

ORLANDO FORECAST OF PRODUCTION RATES

Type of Loader	NO. OF UNITS/YR			
	Basis For Calculations	1982	1983	1984
JC-PL2	270	24	236	250
MDL-40	38	0	12	30
CPT-3	0	0	0	40

APPENDIX

A PRODUCT DESCRIPTION

B THERMAL INCINERATION COST

C FMC PAINT TEST PROGRAM

D PAINT MANUFACTURERS DATA

E PAINT BOOTH AND SPRAY GUN DATA

F PRELIMINARY CONSTRUCTION SCHEDULE

G SITE PLANS

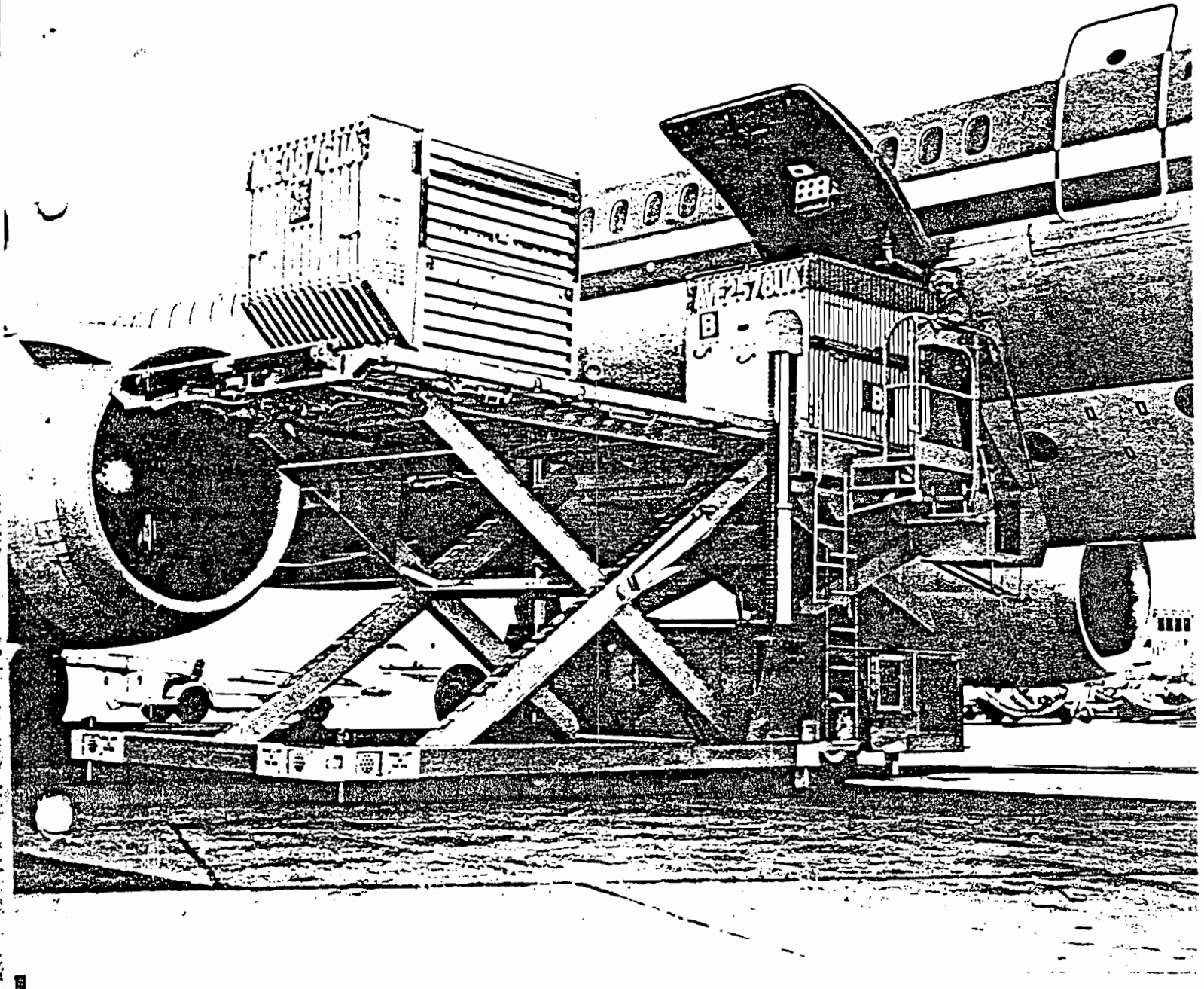
H EMISSION CALCULATIONS

I EFFECT OF USING ELECTROSTATIC SPRAY

J LETTERS OF AUTHORIZATION

FMC

Model JC/PL-2
Container/Pallet Loader



FMC's advanced Model JC/PL-2, latest in the FMC line of aircraft loaders. More efficient, more features — highlighted by a 15,000 pound (6804 kilogram) lift capacity.

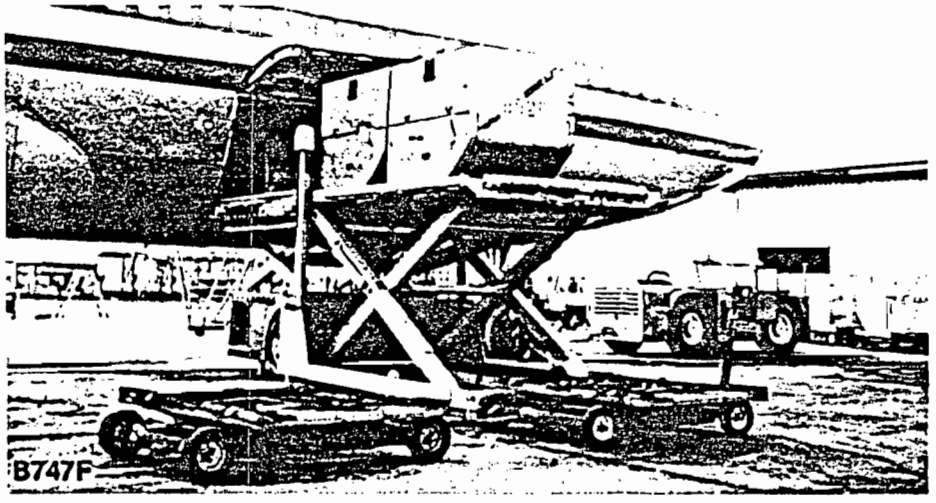
The JC/PL-2 is an improved design that incorporates the most desirable features of the original JC/PL, yet offers additional advantages such as increased lift-capacity to satisfy growing airline industry requirements.

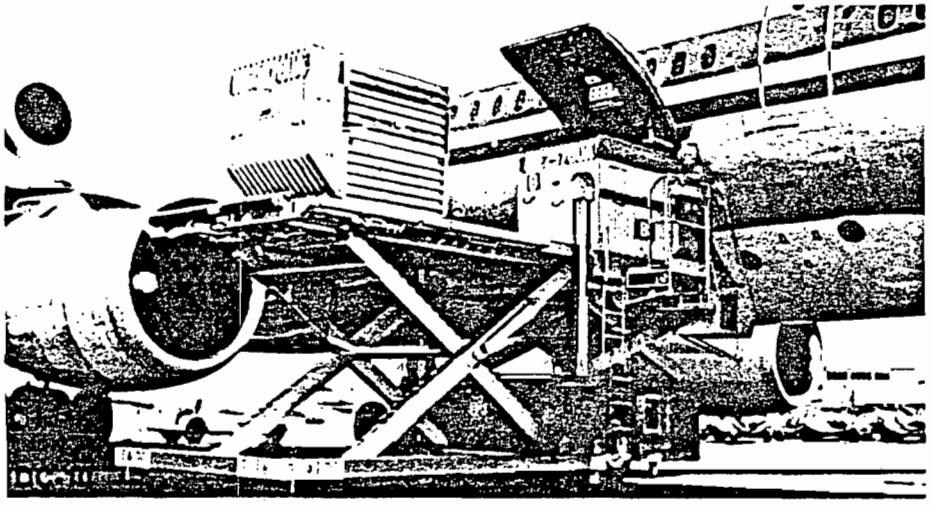
FMC's JC/PL-2 will service the lower-lobe compartments of B747, B767 (container-width door), DC-10, L-1011 and A300-B aircraft, as well as the main deck of the DC-8F, DC-9F, B707C, B727C, B727QC, B737C and the B737QC aircraft.

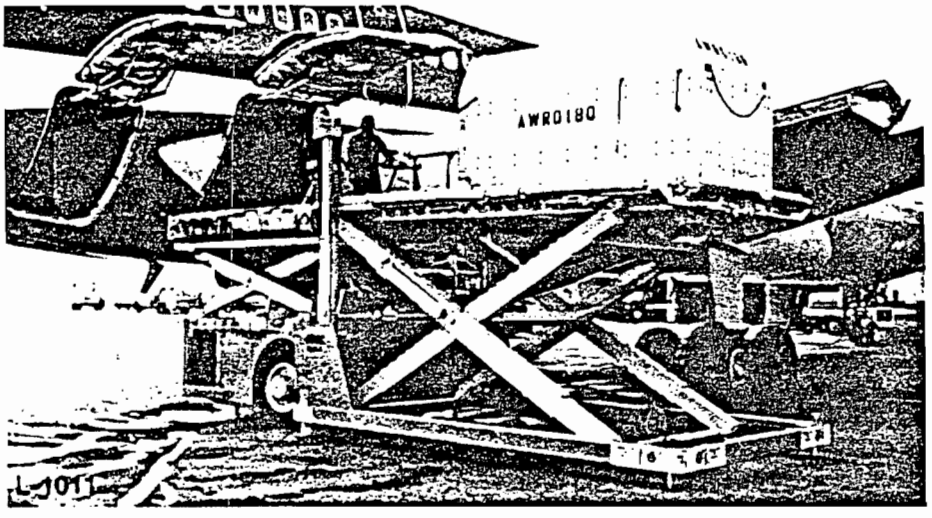
Improved standard JC/PL-2 features include the following:

- A lift capacity of 15,000 pounds (6804 kilograms).
- Powered bridge extension for DC-10 and L-1011 lower-lobe rear door operation.
- Aircraft attachment for smooth, continuous interface plus the capability of staging container or pallet on the forward platform. Unattached transfer (shoot-the-gap) capability is available as an option.
- Servomechanism provides automatic adjustment of bridge to aircraft interface.
- Demand throttle for fuel economy and extended engine life.
- Hydraulically powered side guides and end stop for smooth powered transfer on both sides and rear of loader.
- Dual-row belt modules provide excellent longitudinal load transfer.
- Maximum propulsion speed of 8.5 mph (14 kph).
- Fuel tank capacity of 40 gallons (151 l).

Fast and efficient cargo loading and off-loading.







FMC

Operator Platform

The combination driver's/operator's platform is mounted on the forward scissors lift and is raised to working height with the forward platform. Automotive-type driving controls are located at the front of the platform, permitting good visibility and ease of aircraft alignment.

Dual Platforms

The main lift platform is raised by a scissors lift with vertically mounted hydraulic cylinders. Vertical cylinder placement provides uniform lift speed with relatively low hydraulic system pressure. A separate scissors lift with conventionally mounted hydraulic cylinders raises the forward platform to aircraft interface level.

Aircraft Interface

The forward platform is supported by extension arms which are attached to the adapter face plate. Aircraft attachment fittings are mounted on the face plate and, when in place on the aircraft, guarantee a positive match of loader roll plane with aircraft roll plane on every transfer cycle. An automatic servomechanism provides for accommodation of aircraft height changes during the loading cycle. Aircraft pitch changes are accommodated by the torsional flexibility of the forward platform.

Powered Transfer

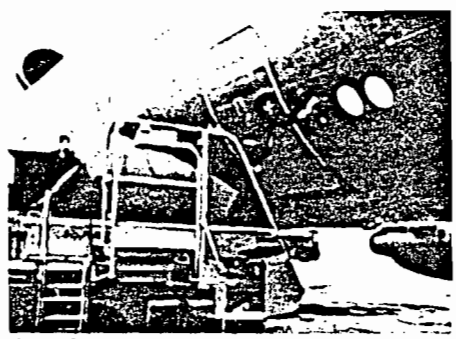
The rear platform mechanically engages the forward platform on each cycle. The forward platform then becomes a floating bridge between the main platform and the in-plane roller system. Powered belts and rollers move containers and pallets across heavy-duty inverted casters. Longitudinal transfer is accomplished by powered belt modules and powered rollers. Transverse movement is effected by powered rollers on both sides and in the center of the rear platform. Belt modules and rollers are hydraulically powered and provide pressure to the container/pallet bases. Automatic stops and guides keep containers under positive control at all times.

Unattached Transfer Capabilities

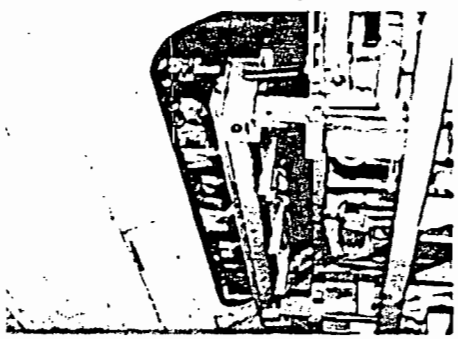
The standard JC/PL-2 may be periodically operated without attaching to the aircraft if equipped with the "shoot-the-gap" option. In addition, the JC/PL-2 can be set up specifically for the user who never wants to attach to the aircraft by incorporating the unattached transfer option. This option in-

(continued)

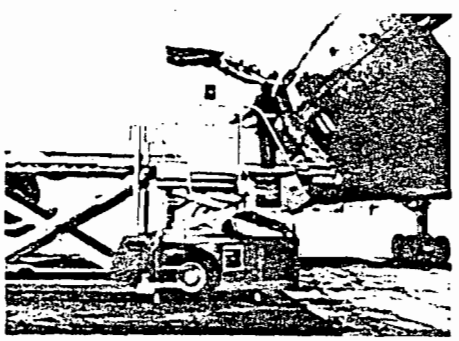
Container and Pallet Transfer Operation



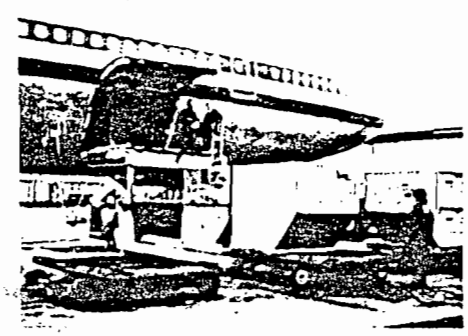
The JC/PL-2 Loader is easily driven into proper alignment with the aircraft, and the cargo door is opened.



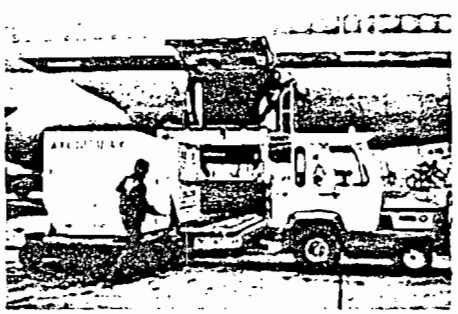
With the appropriate adapter fittings installed on the face plate, the bridge is raised slightly above the aircraft sill height. The adapter hooks are positioned over the aircraft attachment points, then lowered until attachment is completed.



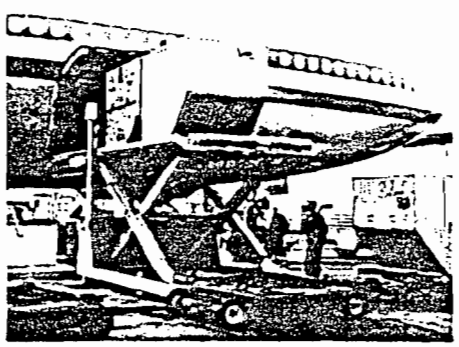
A swing-out control console provides full operator visibility and permits simultaneous loader and in-plane operational control.



Trailers are moved into position for the powered transfer of containers or pallets on either side or at the rear of the loader.



Powered rollers on the sides and rear of the loader transfer loads to and from trailers. Once on the rear platform, container transfer continues under power.



The load is raised to the transfer height. During the entire load/unload operation, the loader automatically maintains proper aircraft interface with respect to aircraft sill level.

FMC Corporation
Airline Equipment Division

Model JC/PL-2 Loader Specifications

Lift capacity	15,000 lb (6 804 kg)
Gross vehicle weight	25,800 lb (11 703 kg)
Overall dimensions	
Length	27 ft 3 in. (8 306 mm)
Width	11 ft 8 in. (3 556 mm)
Height, minimum, including handrails	9 ft 7 in. (2 921 mm)
Wheelbase	12 ft 6 in. (3 810 mm)
Shipping	
Length	27 ft 3 in. (8 306 mm)
Width	9 ft 10 in. (2 997 mm)
Height, main lift cylinders removed	6 ft 5 in. (1 956 mm)
Volume (cube)	1,720 ft^3 (48.86 m^3)
Elevation range	
Bridge	6 ft 3 in. to 11 ft 8 in. (1 905 to 3 556 mm)
Rear platform	1 ft 7 in. to 11 ft 8 in. (482.6 to 3 556 mm)
Speeds	
Fast lift	45 ft/min (22.9 cm/s)
Slow lift	15 ft/min (7.6 cm/s)
Conveying	60 ft/min (30.5 cm/s)
Driving	8.5 mph (14 km/h)
Power systems	
Prime mover	300-CID industrial gasoline engine, 90 SAE BHP continuous rating at 2400 rpm
Hydraulic system	43 gal/min at 2000 psi max. (2.7 l/s at 136 atmos. max.)
Electrical system	12 Vdc
Turning radius	40 ft (12.19 m) to outside edge
Propulsion system	Hydraulic gear motor coupled to 2-speed gearbox and planetary steerable axle
Brakes	Hydraulic, power-assist

Container/Pallet Loader Patents Issued:
U.S.A. 3,666,127 • Brevet Belge 768, 806 • Italy Brevettato 928,281
France Brevet 71/22441 S.G.D.G. • Australia 466,900 • Great Britain 1,354,962

Lithographed in U.S.A

cludes heavy-duty rubber bumpers mounted in place of the adapter face plate and hooks, powered side guides on the forward platform for aircraft fore/aft interface, and hydraulically powered pitch adjustment capability.

Rugged Chassis

The welded tubular steel frame forms the chassis and, at the rear and side transfer areas, serves as a rub rail. Driving and steering is through a heavy-duty truck-type drive axle with standard pneumatic tires. Propulsion is accomplished by a hydraulic motor coupled to a two-speed gearbox. Solid press-on rear tires are mounted directly to the frame. Power is provided by either a six-cylinder gasoline or four-cylinder diesel engine.

Other FMC Airline Equipment

Mobile Systems

Main Deck Loaders
Container/Pallet Loaders
Container/Pallet Transporters
Conveyorized Semitrailers
Deicer/Washers
Container Trailers
Pallet Trailers
Baggage Trailers
Cargo Trailers

Airfreight-Handling Systems

Conveyors
Loading Assemblies
Right-Angle Transfers
Storage Racks
Traveling Loaders
Truck-Dock Scissors Lifts
Turntable Assemblies

For information about the sales, service, or operation of any FMC ground-support equipment, please call or write

FMC Corporation
Airline Equipment Division
1115 Coleman Avenue
Box 145 San Jose CA 95103
Phone (408) 289-2342
Telex 34 6441

FMC

APPENDIX B

MET PRO CORPORATION Systems Division

160 CASSELL ROAD • BOX 144 • HARLEYSVILLE, PA 19438 • (215) 723-6751 • TELEX: 846-424

September 16, 1981

Mr. John Howell
FMC Corporation
20th & Market Streets
Philadelphia, PA 19103

Ref: Orlando Facility

Dear Mr. Howell:

It was a pleasure speaking with you recently regarding your new manufacturing facility which is being built in the Orlando, Florida area. In discussing this particular project, you mentioned that you were in the need of some type of control system for VOC emissions. These emissions are a result of the spray booths which are utilized to coat the various scissor baggage trucks utilized in loading baggage into the commercial airplanes. You mentioned that the state of Florida requires either a complying paint system or 90 percent VOC abatement. You provided us with the SCFM rates for the three booths, and these are: 92,000 SCFM, 115,000 SCFM and 16,000 SCFM. This would total 223,000 SCFM. The total vent stream contains approximately .1 lbs./min. of naptha which must be abated.

In considering this particular application, there are two possible approaches. The first approach would be to utilize thermal incineration. The cost of the thermal incinerator alone would be in excess of 2.2 million dollars, and the operating cost would be very substantial because of the very low concentrations of naptha present in the vent stream. The second alternative would be to concentrate the solvent loading in a KPR apparatus system. This would also be well in excess of 2.2 million dollars and would in all probability consist of multiple units in series to significantly concentrate the solvent contaminants to a level at which they could be catalytically incinerated. In conclusion, both of these control alternatives are very expensive for the concentrations of naptha present in the vent stream. We would be pleased to provide additional information after the viability of control techniques has been further evaluated. Meanwhile, we have enclosed literature on both our incineration systems and the KPR concentrating apparatus. Should you have any questions or require any further information, please do not hesitate to call upon us.

Very truly yours,

Carl E. Janson
Manager
Sales and Marketing

CEJ/sdc
Enclosures

APPENDIX C

1.0 FMC Corporation

The Corporation, headquartered in Chicago, is a major OEM (Original Equipment Manufacturer) of machinery and chemicals for industry and agriculture. The following table highlights only some of the diverse range of machines that are manufactured within the U.S.

Machine	Where Manufactured
Airline Ground Support Equipment	San Jose, CA
Personnel Carriers and Associated Ordnance Machinery	San Jose, CA, and Minneapolis, MN
Street and Industrial Sweepers	Pomona, CA
Specialized Valves for the Petroleum Industry	Brea, CA
Off-shore Loading Arms	Brea, CA
Tomato Harvesters	Ripon, CA (Soon to be manufacutred in Madera, CA)
Food Processing Machinery	Madera, CA
Citrus Processing Machinery	Madera, CA
Fire Trucks and Engines	Oakdale, CA and Tipton, IN
Rail Cars	Portland, OR

6324a/ca

Sea-going Barges	Portland, OR
Cable and Hydraulic Cranes	Cedar Rapids, IO
and Excavators	Lexington, KY & Bowling Green, KY
Mining Equipment	Fairmont, WV
Orchard Sprayers	Jonesboro, AK
Farm Implements	Minden, LA

The above list is incomplete, yet, despite the diversity of the product range, the product finishing operations have much in common. Two notable exceptions concern our San Jose Ordnance Plant and our Fluid Control Division in Brea, Ca. In our Ordnance Plant, all of the coatings must meet specific performance and camouflage requirements as specified by the customer. Therefore, the coatings must meet Military (MIL) and federal (TT) specifications.

Our Fluid Control Division in Brea, Ca. makes off-shore loading arms which are exposed to the severest marine environments and are therefore protected by high performance coatings, such as inorganic zincs, polyurethanes, vinyls, epoxies, etc. In many instances the coating system is specified by the customer.

2.0 Product Finishing Procedures

The typical FMC finishing system is described in the following paragraphs but may we point out, that while we refer specifically to FMC machinery, we believe that our manufacturing and finishing procedures are very similar to those used by most other O.E.M. machinery manufacturers nationally. Therefore, we consider that many of our paint finishing requirements are common for the industry.

* Steel is cut to size, fabricated and welded into small parts, components or sub-assemblies.

* The small parts, etc., are treated for painting by a variety of methods, which often comprise a 3-stage iron phosphate spray washer; a five-stage iron or zinc phosphate immersion process or a single stage steam/phosphating process. In some cases, the heavy steelwork is grit blasted prior to painting

* Small parts and components are usually suspended on a conveyor line and pass through a small parts spray booth where the primer is

applied. Weldments are usually batch primed in a separate priming booth.

* Within one hour, primed parts are usually stacked and taken to outdoor storage where they can remain for periods of up to six or eight months awaiting assembly.

* The small parts, components and sub-assemblies are brought back into the manufacturing facility where final assembly and testing takes place.

* The assembled machines are steam cleaned to remove grease, oil and dirt that has collected during the storage and assembly periods. Thereafter, any areas that show rust or other imperfections are scuff sanded, usually exposing bare metal.

* Primer is applied either locally over those areas where the metal has been exposed or, if scuff sanding is extensive, the primer is applied over the entire machine.

* Within 30-45 minutes after priming, the first finishing coat is applied (usually one of two finishing colors).

* Since most of FMC's machines are two-tone, the first finishing coat is allowed to dry for three hours before masking takes place to make allowance for the application of the second color.

* The second finishing color is applied and allowed to air dry for approximately two hours before the machine is driven out of the spray booth into a stageing area.

* During the next working shift touch-up, application of decals, etc. takes place.

* In some cases, machines are ready to be shipped as soon as 24 hours after the machines were first prepared for finishing. In almost all cases the machines are shipped within 2 days of final finishing.

6324a/ca

3.0 Minimum Performance Requirements

Tables I and II list the minimum performance requirements that all coatings must meet in order to be approved for FMC's use. An explanation of some of these requirements follows:

1. The primer and topcoat must be lead- and chrome-free. Although OSHA has not yet introduced chrome legislation similar to the Lead Rule, we have eliminated chrome compounds from our existing paints, as we believe chrome compounds to be hazardous to the health of the painters. Many other large corporations have done like-wise.

2. Currently, most all of our facilities are designed for a strictly air-drying primer; one which is ready to be handled and stacked within 30-45 minutes after application.

3. In the finishing booths, the topcoat is often applied 30-45 minutes after touch-up priming has been carried out. Therefore, in these instances, the primer must be able to receive the top coat within 30-45 minutes.

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4. Since the primed parts are often stored outdoors for lengthy periods, it has been necessary to specify a salt spray resistance of primer (applied to Bonderite 1000 Standard Laboratory Panels), exceeding 250 hours. This is considered in the industry to be a reasonable requirement. When the primer is applied in a manufacturing facility, using production parts that have been cleaned in a well controlled pre-treatment system, salt spray resistance must exceed 168 hours.

5. Most all of our paint facilities do not have ovens large enough to house the finished machines. Moreover, many of our machines contain sensitive electronic equipment and hydraulic components that should not be subjected to the high temperatures encountered in force-drying ovens. Therefore, we require the topcoat to air-dry under ambient conditions so that taping can take place within 3-4 hours. In evaluating the taping time, the tape should be allowed to remain on the painted surface for 4 hours before being removed.

6324a/ca

6. The topcoat must achieve reasonable hardness within 3 days to allow for painted components to be stacked. The pencil hardness of our existing conventional acrylic-modified alkyd enamel is HB.

7. Reasonably trained paint operators, and not only by highly skilled people must be able to apply the coatings. Such persons must be able to achieve a consistently high-quality finish and a uniform low film build of 1.0-1.5 mils (dry film) per coat.

8. Only hand held spray guns can be considered, as our machines are large and complex. We do not object to the use of in-line heaters for reducing paint viscosity.

9. The approved generic coating system must be availabe from more than one paint manufacturer, who must be able to service accounts in Northern and Southern California. Since FMC, nationally, has standardized its paint system, the paint manufacturer should preferably, also, be able to service accounts in other states.

10. Most air-drying alkyd enamels have a critical re-coating time of 6-24 hours, depending upon ambient conditions. If the critical re-coating time extends much beyond 24 hours, we will not be able to touch-up the machines in time for shipment to take place.

11. The critical re-coating time must not be ultra-sensitive to dry film thickness variations of the previously applied coatings. Dry film thicknesses ranging from 1.0 to 1.5 mils are considered to be a reasonable variation.

4.0 Water-Reducible Primers

In 1979 we carried our laboratory evaluations on a wide selection of water-reducible primers, and selected 2 that appeared to give excellent results. One primer contained zinc-chromate, while the other was chrome-free. Both primers met the 2.8 lb/gal (340 gm/lt) VOC requirement.

During April 1980 we conducted a line trial at our Airline Equipment Division in San Jose where production parts, which had been pre-treated through a 5-stage iron phosphate immersion process, were primed.

Conventional electrostatic air-spray equipment (by Arvid Walberg) was used to apply the paint. Application properties were good, however, all of the primed parts failed within 48 hours when exposed to 5% salt spray to ASTM B 117, (following common industrial practice). Although neither primer performed well, the chrome-free primer failed even sooner than the chrome-containing material.

To determine if surface preparation may have been the cause for the premature failures, a second line trial was carried out, this time at our Hydraulic Crane Division in Lexington, Kentucky. During this trial, the water-reducible primers were applied over various pretreatments;

3-Stage iron phosphating

3-Stage iron phosphating plus a solvent wipe

Steam cleaning

Steam cleaning with iron phosphate

Steam cleaning with iron phospate, followed by a solvent wipe

Bonderite 1000 laboratory panels (iron phosphated panels commonly used in the paint testing industry)

The results confirmed our beliefs concerning the critical sensitivity of water-reducible primers to surface preparation. For instance, we found that although our 3-stage iron phosphating process was well controlled, the salt spray performance was considerably less than when the water-reducible primer was applied to the Bonderite 1000 laboratory panels. Furthermore, it was shown that a solvent wipe following either the 3-stage iron phosphating process or the steam cleaning process produced slightly better salt spray performance. This demonstrated the sensitivity which water-reducible primers have to even the slightest traces of grease and oil on the metal surface. In practice, it is impractical to carry out solvent wiping after the pretreatment, as this would require large amounts of solvent, add another step to the process, and be extremely costly.

Of the two primers that were used in these tests, the chrome-free formulation performed less favorably than the chrome-containing material, although neither performed in accordance with FMC's minimum requirements of 168 hours of salt spray resistance.

Additional tests are to be carried out during September 1981 to establish if FMC's minimum performance requirement of 168 hours is realistically achievable on production parts. In these tests we will be using both single component and 2-component water-reducible primers, and surface preparation will comprise a well controlled 3-stage iron phosphate spray washing process.

5.0 High-Solids Topcoat (3.5 lb/gal; 420 gm/lt)

Early in 1980 we looked into the possibility of using high-solids, solvent-based, air-drying, alkyd technology. At that time, DuPont was the only paint manufacturer who could offer us a high-solids topcoat, but not an equivalent primer. Based on all our investigations, it appears that at the time of this writing, DuPont is still the only paint manufacturer who has a commercially available high-solids air-drying, topcoat, and a high-solids air-drying primer. Other paint manufacturers are still developing their technologies. The two DuPont materials do not meet the California VOC requirement of 2.8 lb/gal (340 gm/lt), but they do meet the federal guidelines of 3.5 lb/gal (420 gm/lt). DuPont has indicated to us that they do not anticipate being able to meet the

California VOC requirement within the forseeable future.

In May 1980 we performed our first line trials with the DuPont high-solids, solvent-based, air-drying material, and initial results seemed favorable.

In August 1980, we conducted a line trial at our Crane and Excavator Division in Bowling Green, Kentucky, where a complete Cable Crane was topcoated with the high-solids formulation. (A conventional solvent-based, primer had been used prior to the trial.) Results were promising, although there were several deficiencies which we still needed to address. Dry-through time was unacceptably long; taping time well exceeded 4 hours, and film thickness varied widely across the machine. Where the paint was too thick, through-drying could not take place and the paint damaged easily.

In November 1980 and again in February 1981, two line trials were carried out at our Agricultural Machinery Division in Ripon, California. In these trials we tried to assess the feasibility of using a water-reducible primer followed, within a short period of time, by the

high-solids enamel. In addition, this was our first opportunity to apply the newly formulated DuPont high-solids air-drying primer (3.5 lb/gal or 420 gm/lt VOC). When we applied the solvent-based topcoat over the water-reducible primer, (within 30-60 minutes of primer application) pinholing and slight blistering of the topcoat took place. This was to be expected, since an adequate time is required for the water in the water-reducible primer to evaporate. (As pointed out in section 2.0 of this letter, it is often necessary for us to apply the topcoat over the primer within this short period of time, particularly on the finishing line.) We observed no coating defects when applying the high-solids topcoat over the freshly applied high-solids primer. Our proposed trials in September, 1981 will once again evaluate the compatibility or incompatibility between water-reducible primers (single and 2-component) followed by the high-solids alkyd top coat.

In April 1981, we conducted a line trial at our Sweeper Division in Pomona, California, during which we primed and topcoated two machines with the DuPont high-solids air-drying primer and topcoats. Our results demonstrated that while the primer and topcoats were on the limits of acceptability, they did not meet FMC's minimum performance requirements

with regard to through-drying time, taping time, and ability to apply the topcoat to a uniform dry-film thickness. We found that due to the large film thickness variation, we were not able to carry out normal touch-up on the finished machines within 48 hours of topcoat application. This long, critical recoating time is unacceptable as most machines often need to be shipped well within this period.

During the line trial at our Sweeper Division, we experienced difficulty in applying the primer due to the extensive dry over-spray produced. This was despite the fact that the material was applied per the manufacturer's recommendations. In our proposed trials, to be carried out in September, 1981, we will once again test this product, and make every effort to eliminate the overspray.

Production and laboratory panels primed during our Ripon and Pomona line trials failed salt spray resistance within 48 hours, and the results are demonstrated in Figure 1. Panels that had been coated with the high-solids primer and topcoat system produced unacceptable blistering when exposed to ASTM B117 salt spray, and these results are shown in Figure 2.

6.0 Water-Reducible Topcoats

During the latter part of 1980 we intended carrying out trials with water-reducible, air-drying, topcoats, which would meet the California VOC requirement of 2.8 lb/gal (340 gm/lt) and also meet FMC's minimum performance requirements. In December 1980 we surveyed both major and medium-sized paint manufacturers; large OEM machinery manufacturers, such as John Deere & Co., International Harvester, Clark Equipment, Allis Chalmers, etc., and small California-based machinery manufacturers. There was general consensus that there are currently no water-reducible air-drying topcoats available, which will allow us to achieve consistent drying times under varying ambient humidity conditions, nor will they to meet FMC's minimum performance requirements with regard to exterior durability, water resistance, salt spray resistance, etc. In order to use the water-reducible topcoats currently available, we would need to install large ovens so that the coating can force-dry at a minimum of 150°F for approximately 30 minutes. As pointed out earlier, we do not wish to subject our finished machines to these temperatures since we believe that this would be detrimental to the electronic

components, hydraulic seals and several non-metallic materials that form part of our finished machines. Discussions with some of the OEM machinery manufacturers who are currently considering the use of force-dried water-reducibe topcoats, revealed that these do not yet exhibit the same high performance exterior durability, resistance to water spotting, etc., that are exhibited by the existing solvent-based coatings. Manufacturers who currently use such top-coats generally choose under-the-hood and other low visibility areas for these applications. The force-dried water-reducible top coats are generally not used where high quality finishes are required.

7.0 Conclusions

Based on all the the laboratory evaluations and field trials which have carried out since 1979, we conclude the following:

1. The water reducible primers which we have tested showed that surface preparation is critical if reasonable corrosion protection is to be provided by the primer.

2. If a water-reducible primer were to be used in order to meet the California VOC requirement of 2.8 lb/gal (340 gm/lt), we could only used it on the original prime-line where sufficient time elapses between the priming and finishing operations. However, a conventional solvent-based primer would be required for touch-up purposes in the finishing booth, where the topcoat must be applied within 30-60 minutes after primer application. As pointed out, "touch-up" priming can often be extensive.

3. There are no commercially available high-solids, single component, solvent-based, air-drying, primers or topcoats that will meet the California VOC requirement of 2.8 lb/gal (340 gm/lt).

4. DuPont appears to be the only paint manufacturer who is currently marketing a high quality high-solids primer and topcoat which will air-dry within 3-4 hours. These materials only meet the federal VOC guidelines of 3.5 lb/gal (420 gm/lt).

6324a/ca

5. We consider the DuPont high-solids topcoat to be on the limits of acceptability, but we require more time to learn to use this system to our satisfaction.

It is mandatory that consistently low dry film thicknesses (1.0-1.5 mils per coat) be achieved in order to prevent solvent entrapment, blistering of the coating in highly humid environments, and to maintain a reliable recoating time that does not exceed 24 hours. We believe that operator training and selection of suitable spray equipment will enable us to achieve this consistent paint application. In particular, we believe that, in order for our paint operators to achieve a uniform film thickness we may need to add small amounts of thinners to the high-solids coatings in order that the coating can be applied with more flexibility. We consider solvent addition to be a temporary measure, and will phase it out as our application techniques improve. We believe that this could be achieved by December, 1982.

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6. While paint manufacturers other than DuPont are continuing with their R & D in the field of high-solids coatings, they do not yet have any of their products commercially available. Therefore, if the California regulations go into effect on January 1, 1982, we will be limited to a single source of supply. Moreover, the coating will only meet federal VOC guidelines and not the California VOC requirement.

A DuPont high-solids topcoat is immediately available to us in FMC's standard colors, however, our Airline Equipment Division in San Jose uses up to 193 custom colors while our Sweeper Division in Pomona must supply up to 50 custom colors. Since these custom colors are usually required in small quantities (less than 50 gallons per year), DuPont will not be able to supply these in their high-solids formulation by January 1, 1982. It is believed that a transition period of approximately 2 years will be required before these colors will be available in the high-solids material. The larger volume colors will precede the lower volume ones.

APPENDIX D

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
WILMINGTON, DELAWARE 19898

FABRICS & FINISHES DEPARTMENT

November 24, 1980

Mr. Ron Joseph
Supervisor, Paints and Coatings Section
FMC Corporation
Central Engineering Laboratories
1185 Coleman Avenue
Box #580
Santa Clara, California 95052

Dear Ron:

This letter states our position concerning air dry high solids (ADHS) technology and the commercial supply position. Air dry is defined as ranging from strict air dry through force dry at $\leq$ 225°F.

Technology

For air dry technology, 3.5 pounds/gallon VOC is achievable. In fact, our 917-Line ADHS chemistry has been successfully demonstrated in 13 states and is being sold on an on-going basis at several locations.

It is understood that the California Air Resource Board (CARB) has stipulated 3.0 pounds/gallon VOC maximum for air dry products. Unfortunately we have not seen nor do we anticipate any technical success in achieving the 3.0 pounds/gallon limit for air dry products as applied. Significant investment in the form of incineration or other mechanical means would be required to achieve the 3.0 pounds/gallon limit.

Commercial Supply

Du Pont has publicly announced our full commercial position for ADHS technology at 3.5 pounds/gallon VOC. As stated above, we are commercial at several locations already. This does not mean, however, that the literally thousands of colors used throughout the air dry industry are all developed and ready for sale. Rather the relatively few colors (less than 100) which are sold in bulk and account for the majority of the air dry industry volume are commercially available. All other small volume or one

November 24, 1980

Mr. Ron Joseph
FMC Corporation

time only colors will be developed on a priority basis simply because of limited resources available to us. While we foresee no insurmountable problem in matching any color, it would be incorrect to assume that all colors can be available in any quantity or container by 1982. The time required to develop any color can range from one day to over a year depending on the specific pigmentations required and/or our available resources to respond.

Very truly yours,

M. Paparone
Marketing Manager
Industrial Finishes

MP:AMA

FF-7623

DU PONT
ESTABLISHED 1802
E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
WILMINGTON, DELAWARE 19898

FABRICS & FINISHES DEPARTMENT

January 5, 1981

Mr. Ron Joseph
FMC Corporation
Central Engineering Laboratories
1185 Coleman Avenue
Box #580
Santa Clara, California 95052

Dear Ron:

In response to your December 15 letter to me and our conversation today, I've attached a copy of the Du Pont testimony given to the Illinois EPA at their hearing on December 17, 1980. As you will see, it covers farm and construction industries plus the railroad industry.

Also, a reminder that the red and primer for Ripon, California plant will be delayed. We expect it by the week of January 19.

Finally, the two colors you requested matched for your Sweeper Division in Pomona will not be ready in January for three reasons:

1) To match new colors in our 917-Line quality is requiring 8 to 12 weeks due to the large number of requests we are receiving. While the white color is easy, the green will require development and significant lab time.

2) The small, five gallon quantities requested for test must be made in the lab as they are much too small for plant scale.

3) Our Refinish organization services your Sweeper Division and internally, I must get their approval to process your request. This was delayed due to vacations over the holidays.

I hope the information is helpful and if you have any questions please do not hesitate to call.

Very truly yours,

M. C. Paparone
Marketing Manager
Industrial Finishes

MP:AMA

STATE OF ILLINOIS
PUBLIC HEARING 12/17/80 - CHICAGO

COATINGS COMPLIANCE TESTIMONY

BY: John E. Lowe
E. I. du Pont de Nemours & Co., Inc.
1007 Market Street
Wilmington, Delaware 19898

Michael Paparone
E. I. du Pont de Nemours & Co., Inc.
1007 Market Street
Wilmington, Delaware 19898

Subjects:

A. Complying Air Dry Coatings for Farm Machinery and Heavy Equipment

B. Railway Equipment Coatings

- Rolling Stock
- Locomotives - Cabooses
- Tank Cars
- Hopper Car Interiors
- Hopper Car Exteriors
- Food Contact Linings
- Passenger Car Interiors

INTRODUCTION

Du Pont testimony is being offered on the basis of Du Pont's position as a major and national supplier of these coatings.

Du Pont specifically is a major supplier in the state of Illinois to the Heavy Equipment industry and the Railway Equipment industry.

Technical data and samples of the coatings discussed in this testimony are available upon request. If samples are tested, Du Pont requests copies of the test results and test methods employed.

Subject A

Complying Air Dry Coatings for Farm Machinery and Heavy Equipment

The severe exposure regulatory emission limit under the Miscellaneous Metal Parts and Products Control Technical Guideline by federal EPA and the corresponding regulation emission limit being proposed by the state of Illinois is 3.5 #/gal.. The volume solids of a complying coating for this limit is 52% $\pm$ 3%.

Because of the size and necessary manufacturing and assembly processes for the end products of this industry, the only practical coating must air dry in a reasonable period of time which varies by user.

The coating for this end use must exhibit very specific and stringent properties including:

(a) Exterior durability; i.e. 1 year 60% gloss retention Florida 45°S exposure
(b) Gloss levels 10-90 + @ 60°
(c) Recoatability 1 hr. 7 months
(d) Non-toxic Lead free
(e) Application over cast, hot and cold rolled steel as

well as minor use over bronze, aluminum, wood and some plastic substrates.

(f) Flexibility - impact

The original coatings research done to reduce VOC emission levels for this industry was in the area of water-borne products. Although water-based products that offer reasonable dry film properties for this end use were in fact developed, the inherent problems of evaporting the water from the film under all ambient conditions have proven to be insolvable without controlled heating or forms of air conditioning. Control of the ambient conditions for application and dry are prohibitiv from a capital cost standpoint. Also, water-borne soil tolerances are minimal requiring investment for elaborate metal treatment and more efficient application methods such as electrostatic spray require high investment.

After expending large amounts of research dollars and three years of development time, Du Pont abandoned the water approach for this end use and have concentrated on high solids solvent coating technology. Water-borne technology is viable for some other industries but primarily where the film can be handled in controlled baking ovens.

After two years of development, Du Pont began field trials of high solids - 52% - complying coating for heavy equipment and farm machinery in November of 1978.

As of today, this product has been evaluated in 22 plants, in 12 states.

The product is being run in 10-20 drum batches in 3 plants.

We are scaled up for resin and product manufacture in one Du Pont coatings manufacturing plant and a second coming on stream. We foresee no raw material availability problems and our capacity is large enough to service existing indu[illegible] requirements.

As of the 4th quarter 1980, we considered this product fully commercial and available to all manufacturers in the large equipment industry.

In regard to changeover from conventional high VOC emission coatings currently being used, the capital investment required is minim Optimum application results can be obtained by use of hot air and/or hot airless spray equipment. Electrostatics can be combined with such equipment including automatic, robot and hand held guns.

In most heavy equipment plants paint heaters are already in u

No special metal treatment or oven facilities are required for this product.

Cost per gallon of high solids coatings are higher than conventional products but costs per square foot applied, while currently still somewhat higher, up to 5%, are expected to be similar because of increasing cost of organic solvents. Demonstrated production rate increases further offset higher cost per square foot.

This completes our testimony on Subject A.

Subject B - Railway Coatings

Railway coatings also fall under the severe exposure category of Miscellaneous Metal Parts and Products Control Technical Guideline by federal EPA and the corresponding regulation emission limit being proposed by the state of Illinois; i.e., 3.5 #/gal. VOC or 52% volume solids.

Railway coatings must be divided into seven separate end uses because of different property requirements; these are:

- Rolling Stock

- Locomotives & Cabooses
- Tank Cars
- Hopper Car Interiors
- Hopper Car Exteriors
- FDA Approved Food Contact Linings
- Passenger Car Interiors

Because of the variety of properties required and the coating technologies available, this industry should logically be regulated under a separate RACT for the seven categories. This would be relatively easy to establish but under Miscellaneous Metal, the railway equipment manufacturers will be forced to request relatively complex variances in each state where coating is done. We are not recommending a separate CTG category, but do point out the problems involved in the many different coatings needs in this industry.

Fortunately, considerable coating research has been done in the past few years resulting in lower emission products that can be used by this industry that can result in major emission reductions as compared to the coating systems currently used. This does not, however, mean full compliance with the 3.5 #/gal. regulation for all categories.

This is not an unusual situation and I cite an interpretive directive issued by Walter C. Barber, Director, Office of Air Quality Planning and Standards of EPA. The letter is dated April 28, 1978 under the subject of Development of Regulations for Hydrocarbon RACT from CTG's.

Quote:

1. "Tough presumptive numbers were selected assuming

that they did not have to be achievable or reasonable for every source."

2. "Where economics or other circumstances justify regulatory requirements less stringent than those contained within the CTG's, such justification should be clearly documented in the SIP submittal. Note; this quote is contained in the subject letter but is a quote from David Hawkins, Assistant EPA Administrator, in a memo to the Regional Administrator's on February 2, 1978.

The following delineates the VOC emission levels that can be expected if the railway industry adopts the most current coating technology which should be currently considered as RACT for these end uses.

Rolling Stock - Freight cars - Property Requirements

Air dry high solids solvent base enamel

52% volume solids 3.5 #/gal (full compliance)

65-80% of total volume of railway coatings are in this category.

Locomotives and Cabooses

Property requirements; gloss retention, impact resistance, high level of overall exterior durability and appearance.

Air Dry 30-35% volume solids urethane (a major reduction in VOC emissions vs. the conventional acrylic lacquers used at 10-20% volume solids.)

Potential for full compliance urethane products by 1984 based upon current R&D programs.

Tank Cars

Property requirements; chemical resistance and exterior durability.

Air dry high build urethane 45% volume solids

Note; limited colors & gloss

Hopper Car Interiors

Property requirements; superior adhesion, chip resistance, corrosion resistance.

Air dry epoxy primers at both 40 and 50% volume solids.

Currently used.

Expectation for full compliance highly unlikely because of limiting chemistry.

Hopper Car Exteriors

Property requirements - extreme corrosion and chemical resistance (higher level than tank cars)

30-35% volume solids vinyls (Primers & Topcoats)

(limited colors - when considered with high build urethanes for tank cars, a relatively broad color line is available.)

Unlikely development of full compliance product.

Food Contact Linings - dry

Property requirements - FDA approvals, abrasion resistance.

45-52% volume solids for two epoxy basecoats

38-41% volume solids for urethane clear topcoat.

Note; some use only basecoats

Very unlikely that lower emission technology can be developed and still obtain FDA approval.

Passenger Car Interiors

Property requirements - High Mar/Smudge/abrasion resistance.

RACT coatings currently will be a mix of complying air dry high solids enamel @ 52% volume solids - 3.5 #/gal. VOC. and 30-35% Volume Solids Urethane. There is a potential for

full compliance of the urethane by 1984.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: 28 APR 1978

SUBJECT: Development of Regulations for HC RACT from CTG's

FROM: Walter C. Barber, Director WB
Office of Air Quality Planning and Standards

TO: Robert Duprey, Director
Air & Hazardous Materials Division, EPA Region V

The Control Techniques Guideline documents were published to aid in developing RACT-type regulations for sources of volatile organics. It appears that they are being interpreted too narrowly and that regulations based on the CTG's documents are using only the presumptive emission number and neglecting to include the qualification that this number may be either too restrictive or too lenient for some facilities. The CTG documents contain the statement "It must be cautioned that the limits reported in this Preface are based on capabilities and problems which are general to the industry, but may not be applicable to every plant". This caveat was noted in the memo on implementation of RACT for HC sources from Dave Hawkins to all R.A.'s on February 2, 1978 "Where economics or other circumstances justify regulatory requirements less stringent than those contained within the CTG's, such justification should be clearly documented in the SIP submittal."

Tough presumptive numbers were selected assuming that they did not have to be achievable or reasonable for every source. If the presumptive CTG number is used verbatim in a regulation, there should be a provision or a procedure to allow relaxation after a case-by-case demonstration of infeasibility, (technical or economic) either during the proposal period or as a later SIP revision.

The example RACT-type regulations for VOC that GCA did for Region V use the presumptive CTG numbers as absolutes. You should consider adding the appropriate general provision or noting in the package that a form of a variance procedure is needed if the limitation in the example regulations are to be applicable to all sources.

cc: D. Goodwin
J. Calcagni
D. Rhoads
R. Wilson
M. James
Air & Hazardous Materials Division Directors (Regions I-IV, VI-X)
Regional Air Branch Chiefs (Regions I-X)

EPA FORM 1320-6 (REV. 3-76)

SCM GLIDDEN COATINGS & RESINS
SCM CORPORATION

P. O. BOX 7710 94120
1000 SIXTEENTH STREET • SAN FRANCISCO, CALIF. 94107 TELEPHONE: (415) 621-0200

December 23, 1980

Mr. Ron Joseph
Senior Staff Engineer
Materials Engineering Laboratory
FMC Corporation
1185 Coleman Ave., Box 580
Santa Clara, CA 95052

Dear Mr. Joseph:

Thank you for the opportunity to reply to the requests stated in your letter of December 15, 1980 with reference to water reducable coatings for machinery.

In answer to your specific inquiries:

1. Yes - we have a water reducable single component air and force dry coating meeting your requirements.

2. Yes - we are currently supplying commercially John Deere, International Harvester and other heavy equipment manufacturers. We are now processing names and locations to which we can refer you.

3. Yes - two-tone systems are in use. Specific instructions for application are now being assembled.

4. Yes - the firms mentioned previously have already made this conversion with the objective of upgrading the quality of the finish on their products.

5. Mr. Robert Minuccani has contacted his counterpart in our Midwest Region and Research Center where this activity is centered to assemble specific recommendations and problem/solution information for your use.

.....2

We will have all of this information for your review by mid January -- via c/c of this letter I'm requesting Mr. Gavin Brownlie to set up a meeting at your convenience so we can get materials/information into your hands in an effort to assist in all ways possible the FMC conversion to compliance coating systems.

Yours very truly,

GLIDDEN COATINGS AND RESINS
DIVISION OF SCM CORPORATION

T. A. Melody, Jr.
Manager Chemical Coatings
Western Region

TAM:vn

SCM CORPORATION

JAN 5 1981
MINUCCIANI

INTER-OFFICE MEMO

R. Tanner — DATE: December 30, 1980 — FOR: R. E. Minucciani #14

MWCC #9 - Research Laboratory

cc: P. U. Gualano
F. I. Shuster
K. McInerney #30
W. Anthony #919

C CORPORATION
TTER OF DECEMBER 15, 1980

To answer your request of P. Gualano in your AVO of 12-18-80 I will provide information requested as it appears in the letter from the C Corporation.

We have evaluated our AQUALURE® 110 primer under flash dry conditions prior to topcoat and it requires 15-20 minutes prior to solvent topcoating. Please note this is under laboratory conditions (temperature, humidity) and we have not recommended our primers be used without some heat control to minimize humidity variations.

The surface preparation does effect the corrosion performance of not only water reducibles but also solvent type coatings. To give you an idea of our product perfomance on various substrates, when using our AQUALURE® 110 primer we can attain 200 hours on untreated CRS/300 hours on treated CRS and when using our AQUALURE® 120 you can attain 100 hours on untreated CRS/200 hours on treated CRS. As a general rule we see a 50% improvement in corrosion resistance using iron phosphate and a 60% improvement of corrosion resistance using zinc phosphate. The standard of course is untreated CRS.

The AQUALURE® 150 topcoat over iron phosphate is 400 hours with a maximum 3mm creepage and no field blisters. Generally the topcoat is used over primer for best results. All of the systems have excellent "soil tolerance" to oily substrates. An example would be their use where only solvent wiping is used per the FMC letter.

Note that the primers mentioned are chromate free using * non-chromate anti-corrosive pigments and the topcoat contains no anti-corrosive pigments.

All of the systems formulated are at a maximum of 2.8 lbs. VOC. The VOC is listed on the attached data sheets. The AQUALURE® 150 must stay at a maximum of 37% volume solids to meet the 2.8# VOC. We have increased the VOC on this product to attain higher volume solids (32.0%) on application. The [redacted] product using [redacted] will give the same corrosion properties for the primer and be about 2.1 lbs. gal. VOC.

* Proprietary data.

Gloss on our AQUALURE® 150 topcoat is excellent, offering 92.0 on a 60° degree and 88.0 on a 20 degree. To date, we have nine months Florida and the results are listed on the data sheet for AQUALURE® 150.

As noted on the data sheet, the cure schedules are force dry schedules and these products are not recommended for strict air dry. By evaluating the films of our AQUALURE® 150, it appears that a minimum schedule of 40 minutes at 150°F. would allow them to mask for color change. I would say air dry definitely not.

The customers we currently work with and are commercial at will concur that not only do our water products equal solvent coatings performance, in some areas they exceed their performance. Some companies embarking on water programs with similar end uses are John Deere at Waterloo, Iowa/East Moline, Illinois; J. I. Case at Burlington, Iowa/Racine, Wisconsin, and International Harvester at Rock Island, Illinois.

Find attached general data sheets for products discussed. Particular products for reference would be 731-L-9120 AQUALURE® 110 primer, 731-G-9103-H AQUALURE® 120 primer and 732-L-9106-D AQUALURE® 150 topcoat. The topcoat can now be formulated to use our in-house resin [redacted]. Please note that all test results are based on full cure (7 days age).

I hope this information is helpful in your pursuit of a product for FMC Corporation. If we can be of further assistance please contact me or F. I. Shuster (ext. 274).

T. R. Planner

mjr

Attachments (4)

The Valspar Corporation
2500 8th Avenue
East Moline, Illinois 61244
(309) 752-1450

December 24, 1980

Mr. Ron Joseph, Senior Staff Engineer
Materials Engineering Laboratory
FMC Corporation
Central Engineering Laboratories
1185 Coleman Avenue
Box 580
Santa Clara, California 95052

Dear Mr. Joseph:

Thank you for your letter of 12/15/80 concerning your interest in compliance coatings. I have reviewed your questions with our laboratory manager, Mr. Raymond Mooney, and our response is as follows.

1. Yes, we do have water reducible, single component air dry/force dry coating which will meet your requirements of gloss, weathering and application. These are primarily alkyds which probably do not have the initial and final hardness of your present acrylic modified alkyd enamels. We do have an acrylic modified alkyd which doesn't meet your gloss spec but which may duplicate your current systems for hardness. Initial gloss is about 80° max. on a 60° meter.

2. We have a number of customers who have been using these coatings for 2-6 years. We would suggest that you contact Mr. Harold Prost, Allis-Chalmers Corporation, 11 Pine Lake Avenue, La Porte, Indiana, 46350, where they have been applying alkyds to farm equipment for over six years. We would also suggest you contact Mr. Walt Galyen, Hyster Company, P. O. Box 847, Danville, Illinois, 61832, who has been applying water borne alkyd primer and handled them in a similar manner to which you described, i.e., parts primed and stored outside for several weeks or months and then brought inside to topcoat.

3. It is questionable whether the alkyds could be taped after 3 hrs. of air dry and not show marks for your two tone applications, however, the acrylic modified potentially would work and the alkyds with the force dry probably would work. As you know, tapes vary considerably and we have eliminated some tape mark problems by proper selection of the tape.

4. Small batches of 50 gallons or less are a problem in most paint plants geared to large batches, however, with proper lead times, they are not an insurmountable problem.

5. The most likely problems are water spots of partially cured films that are moved outside into the rain or heavy overnight dew. Other problems would include long dry periods on humid days if you have no oven or air movement of any kind. Water borne coatings also seem to photograph substrate defects more than solvent borne coatings particularly when applied without primers. Application has not been a problem, in fact, worker acceptance has been excellent. These products are being applied dip, air and airless spray.

We would be pleased to provide you with lab samples for your own testing.

Let us know if we can be of further assistance.

Very truly yours,

THE VALSPAR CORPORATION

Donald E. Ochs
Vice President
Farm and Construction Coatings

DEO:sc

The Sherwin-Williams Company
11541 S. Champlain Ave.
Chicago, Illinois 60628
Phone: (312) 821-3000

January 8, 1981

Mr. Ron Joseph
Senior Staff Engineer
Materials Engineering Laboratory
FMC Corporation
1185 Coleman Ave. Box 580
Santa Clara, California 95052

Dear Ron,

Developing high-solids and aqueous coatings satisfying the needs of your industry is one of the highest priority projects at Sherwin-Williams. Your excellent exposition of the potential problem areas is most beneficial for assessing our program.

We concur with your finding that the corrosion resistance imparted by water-reducible primers is very sensitive to metal pre-treatment. This sensitivity is enhanced when such coatings do not contain chromate-based corrosion inhibitors. For optimum performance we recommend 5-stage iron phosphate pre-treatment. We are working to develop coatings which hopefully will give adequate performance over less perfect pre-treatments, as practiced by FMC.

We believe that we can supply you now W/R topcoats with the needed gloss and color retention. In Attachment I you will see data showing that various field-tested S-W aqueous coatings have color and gloss retention comparable to conventional solvent-borne coatings. Please note that the good results in Attachment I were mostly achieved with coatings containing heavy-metal-based pigments. Our preliminary data with all-organic pigmentation indicate that color and gloss retention may be problematic with such systems.

Caterpillar is now applying aqueous coatings on equipment similar to yours. They do not limit the VOC to 2.8 lbs./gallon and are petitioning for a higher VOC limit, possibly 4. Caterpillar is less concerned than FMC with gloss and color retention and is more concerned with early resistance properties. Their specifications are enclosed.

John Deere is successfully applying aqueous alkyds by equipment similar to yours. However, those coatings are used solely for non-appearance parts.

For two-tone finishing under reasonable production flow, you may have to force-dry. We doubt that aqueous alkyds air-dried only can be taped within three hours after application.

Force-dried coatings are expected to tolerate taping but there is a potential problem of lifting of the first coat under the influence of the second coat. We cannot precisely predict, based on laboratory simulation, the exact extent of force-drying needed to eliminate lifting. This will depend on film thickness, temperature, humidity conditions and pre-treatment.

Mr. Ron Joseph January 8, 1981

Through our network of Commercial Branches we are in excellent position to supply relatively small batches of special colors, using our Intermix system. In fact, we are now selling our KEM-AQUA®aqueous alkyd this way and this could be useful to FMC. One reservation is that KEM-AQUA® does not have, in every color, as good color and gloss retention as the coatings of Appendix I.

As to your question concerning expected problems in the use of aqueous coatings, most of these problems are already outlined above. Here it may be useful to point out that the VOC limit of 2.8 may not be enough for overcoming some of the application problems associated with airless spray at film thickness in excess of 1.5 mils; coatings with higher VOC are expected to perform better.

We would like to have an opportunity to review with you our exposure data and would be pleased if we could meet with you when you are in this area.

I am answering your letter on behalf of Dr. Gardon. He has now a new appointment as corporate Vice President of Coatings Development in charge of our long-range advanced research. He and I reviewed this correspondence and he sends you his personal regards. He hopes to stay involved with FMC.

Sincerely,

Bob DeGraff

R. A. DeGraff
Technical Manager
Rail and Off-Road Equipment

RAD/mb

Attach.

cc: G. Marchwick
W. Minear

ATTACHMENT I

GLOSS RETENTION (60°) - COLOR RETENTION (Δ E)

CUSTOMER	RESIN	PIGMENTATION	INITIAL 60° GLOSS	GLOSS-60° 3 MO. FLA.	GLOSS-60° 6 MO. FLA.	GLOSS-60° 9 MO. FLA.	GLOSS-60° 12 MO. FLA.	Δ E 3 MO. FLA.	Δ E 6 MO. FLA.	Δ E 9 MO. FLA.	Δ E 12 MO. FLA.
Yellow											
Caterpillar	Solvent Alkyd	Iron Oxide/TiO_2	86	83	81	47	47	1.19	2.15	3.92	3.23
Caterpillar	Solvent Alkyd	Chrome Yellow	87	77	80	63	57	2.19	3.84	4.52	4.69
Caterpillar	Solvent Alkyd	Chrome Yellow	74	53	48	50	57	2.54	3.15	3.84	3.98
Caterpillar	W.R Alkyd	Iron Oxide/TiO_2	92	83	75	77		0.66	1.29	2.04	
Deere	W/R Alkyd	Chrome Yellow	91	89	84	75		2.01	3.34	4.03	
Green											
Deere	Solvent Alkyd	Chrome Yellow	93	76	72	77	67	1.85	2.35	3.20	4.40
Deere	W/R Alkyd	Chrome Yellow	88	85	80	58	55	1.81	2.61	4.17	4.56
Red											
FMC	Acrylic Alk.	Moly/Mons.	85	76	75	69		1.77	3.22	6.36	
FMC	Acrylic Alk.	Organic/Mons.	90	84	80	67		3.25	3.24	4.57	
I.H.	W/R Alkyd	Moly/Mons.	94	83	77	67		2.94	5.38	8.70	
White											
Wabco	Solvent Alkyd	TiO_2	88	87	79			2.67	3.16		
Wabco	W/R Alkyd	TiO_2	92	77	76	58		3.23	4.14	4.97	

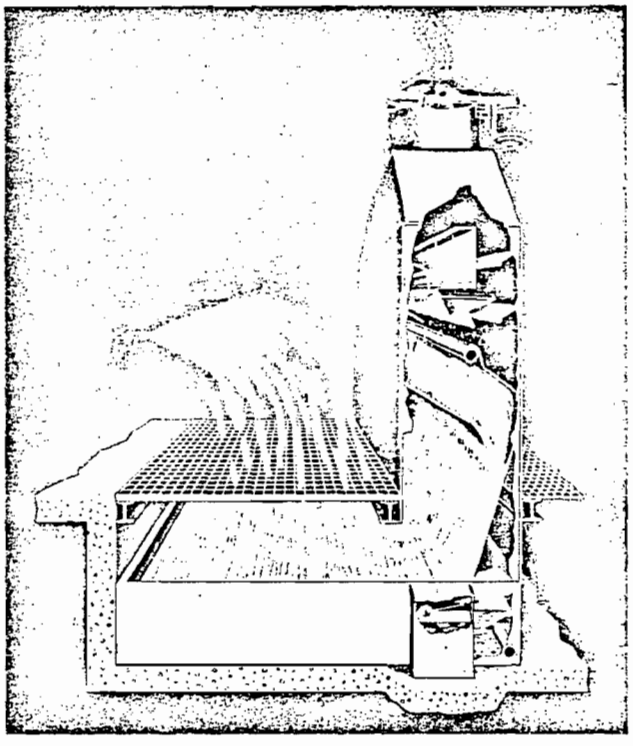
FINAL FINISH
BOOTH

DEVILBISS

DOWN DRAFT SPRAY BOOTHS

Available with venturi cones (see page 8).

for finishing large products: particularly suited for production finishing in many industries; highly adaptable to all kinds of production requirements and plant layouts; for fast, efficient finishing of products on skids, floor trucks, pallets, conveyors or overhead cranes

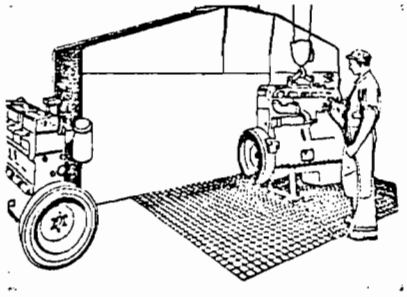


DeVilbiss down draft spray booths, in practically all cases, exhaust into a standard water wash chamber. Thus, these booths combine all the advantages, all the effective scrubbing action of the water wash exhaust system—plus the ability to handle a variety of large, heavy products. They offer practically unlimited possibilities for production line layout and handle practically all materials including the heavy, sticky baking enamels. They permit working around the product, painting top and all sides; if necessary, several operators can work at the same time. Downward flow of air offers both ideal working conditions for the operator and a highly efficient means of drawing overspray into the chamber.

effective paint-trapping areas

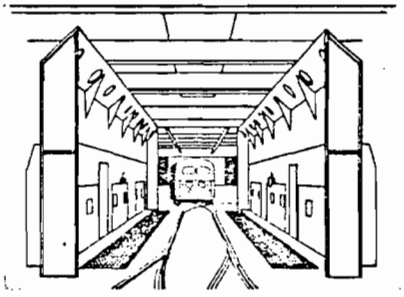
1. the tank of water immediately below the grilled floor; many particles settle on its surface.

2. the dense water spray formed of over-lapping spray cones of large, forceful drops; this intermixed pattern of water pellets gives the exhaust air a final, thorough washing; it scrubs out over-spray particles.



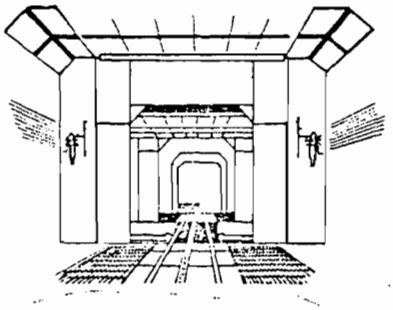
without enclosure

floor area completely clear; no obstructions to impede hauling or moving equipment into spray area; ideal for painting machines and other large articles after assembly



with semi-enclosure

curtain walls to further confine and protect spray operation from dust or dirt; top of booth open to permit use of overhead conveyors or cranes



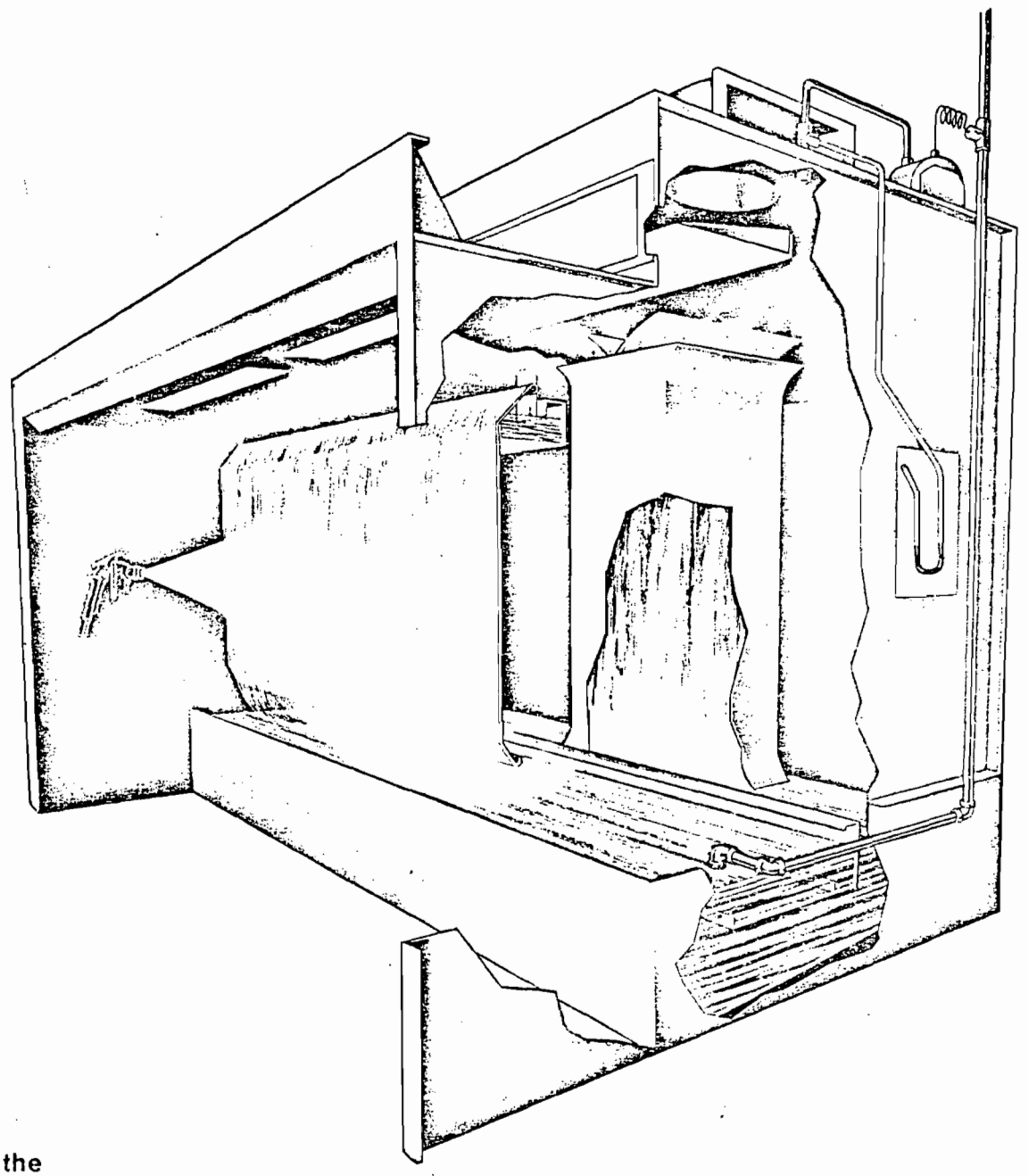
with complete enclosure

complete panel enclosure with doors on both ends (or one end only) and with air filters in roof; forms complete finishing room in which spray operators can work all around object being painted

SMALL PARTS
BOOTH

DEVILBISS

DYNACLEAN® SPRAY BOOTHS



How the Dynaclean Works

A powerful centrifugal exhaust fan lifts a mixture of water and paint laden air through a series of entrainment ducts to the water eliminating section where controlled changes in air direction cause the water and paint particles to separate from the exhaust air. The cleansed air is exhausted to atmosphere through the exhaust fan and ductwork, and the water is returned to the overflow trough where it cascades down the floodsheet to the water tank. Air openings both above and below the face of the floodsheet ensure uniform movement of air through the booth for effective exhausting of overspray and contaminants.

DEVILBISS

THE BENEFITS and FEATURES OF THE DYNACLEAN® SPRAY BOOTH

The Benefits

The Dynaclean spray booth represents an entirely new concept of water wash spray booth construction that affords important cost savings and operating efficiencies.

Improved air washing efficiency—advanced air washer design incorporates a simple yet highly effective means of trapping paint solids. Fewer paint particles reach the outside atmosphere to contaminate the environment.

Reliable operation—the Dynaclean is a remarkably troublefree spray booth. The absence of water pumps, pipework, screens, and nozzles eliminate costly down-time due to pump failure or plugged piping and nozzles. The simplified design provides a water wash spray booth with an unusually high degree of operating dependability.

Less maintenance—the unique design of the Dynaclean includes many improved features that decrease overall spray booth maintenance, an important direct labor-saving economy. Normal maintenance and service required is conveniently performed from the front of the booth.

Construction Features

No water pump—the Dynaclean has no water pump and motor, no pump suction or discharge piping, no pump screens and no spray nozzles. The washing action is controlled by a powerful exhaust fan and high velocity entrainment ducts produce a high degree of paint collection efficiency.

Twin air slot design—air openings above and below the washdown sheet produce uniform air movement throughout the working area without the turbulence which occurs in many spray booths.

Exhaust fan—quiet, high performance, type C, spark resistant centrifugal fan—16 different mounting positions at 22½° increments provide flexibility of installation—horizontal air discharge—belt driven with variable pitch motor pulley—open type motor (230/460 volts 3 phase 60 Hz) is standard, explosion proof or totally enclosed motor available, specify type and electrical current.

Visual Operating Efficiency Check—all Dynaclean booths are furnished with a "U" tube manometer type gauge as standard equipment. This manometer gauge provides a visual reference of air pressure drop through the water chamber at all times to ensure proper booth operation—correct water level, air volume, and air velocity.

Air washing chamber—the unique air washer design produces vigorous scrubbing action to remove air-borne paint particles—washdown sheet is continually covered with a heavy curtain of water to trap direct overspray and prevent material accumulation—paint laden air and water are violently mixed within the entrainment ducts for efficient removal of paint solids—excess water is removed from exhaust air by water eliminating baffles.

Compatible with all materials—well suited for use with all types of industrial coating and finishing materials, including water mixed and inorganic materials. Operates effectively with either sinking or flotation type water wash compounds.

Minimum floor space—no clearance required behind spray booth for maintenance access—no floor space required at sides for pump or piping—all maintenance points are readily accessible from front of spray booth.

Water Tank—reinforced 14 gauge steel, welded construction—tank bottom sloped to front—drain overflow, and fill couplings located at both ends of tank for easy plumbing.

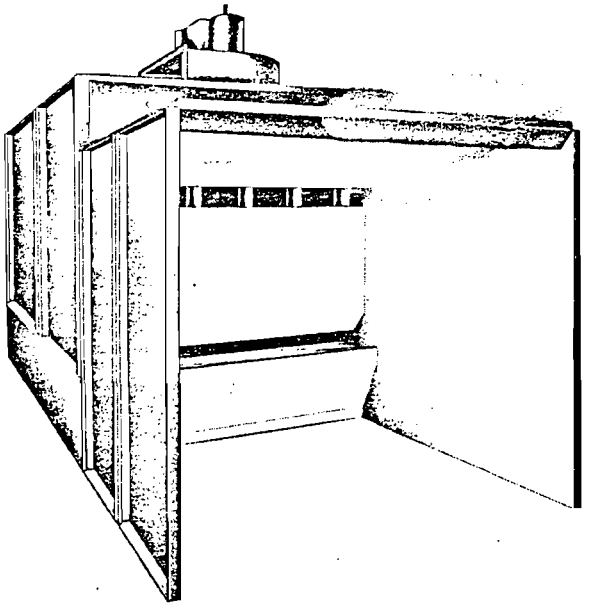
Automatic Water Level Control—maintains proper tank water level at all times for efficient operation—water lost through evaporation is automatically replaced—control valve can be installed on either side, independent of overflow and drain. General purpose control furnished as standard equipment on all booth models—for explosion proof, see page 50.

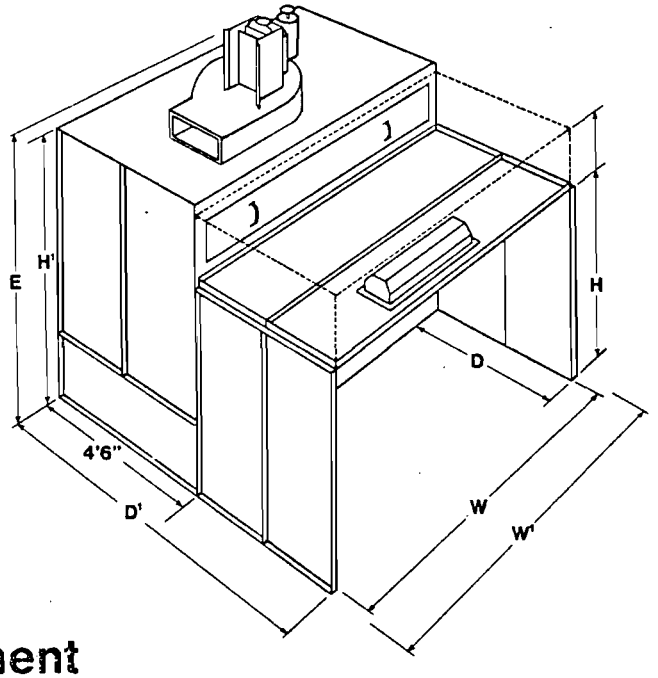
Panel Construction—washing chamber and working enclosure made of 18 gauge steel—rolled panel design—bolt-together self supporting construction. Available in painted or galvanized steel.

Complies with existing codes—the design, noise level, and general construction comply with Federal Occupational Safety and Health Act (OSHA) and the permissible particulate emission levels of the Environmental Protection Agency (EPA), and all provisions of FM, IRI, NFPA, and local codes, provided installation, wiring and maintenance are proper.

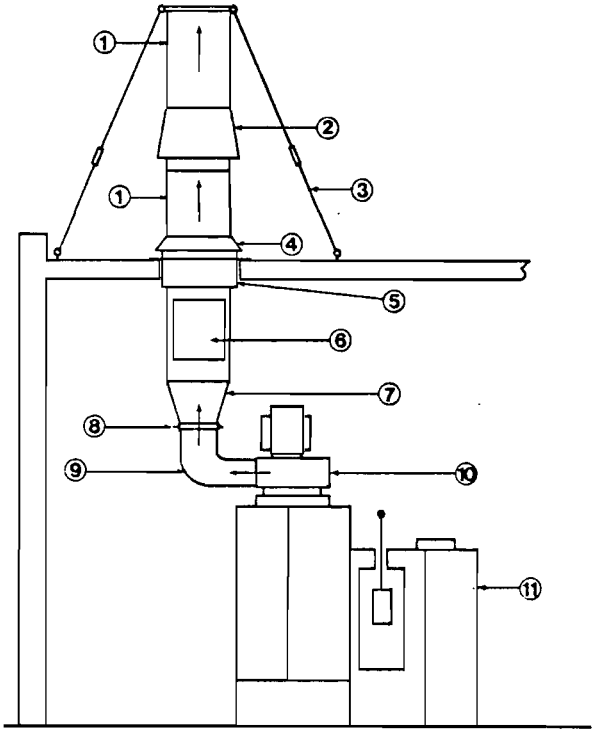
Wide range of sizes—the Dynaclean is available in a wide variety of washing compartment widths, depths and heights.

DYNACLEAN® SPRAY BOOTHS with CHAMBER MOUNTED FANS





typical exhaust fan arrangement



Shown here is a typical fan and stack installation with fan mounted on the booth exhaust chamber. The stack for its entire length should be the same diameter.

1. Plain Stack
2. Stackhead*
3. Guy wire support
4. Roof Flange
5. Roof Thimble (for non-fireproof roofs)
6. Stack with clean-out door
7. Transition (square to round)
8. Frame Connector (square to square)
9. 90° Elbow (square to square)
10. Fan and Motor
11. Dynaclean Spraybooth

*This is only one of several alternatives. Other choices such as a bellmouth or a weathercap are equally suitable. The type of duct terminus used will depend upon customer preference.

QUOTATION

UNIV-AIR
EQUIPMENT CO.

MAIL:
P.O. BOX 724
SANTA CLARA, CA 95052

42 BONAVENTURA DR.
SAN JOSE, CA 95134

PHONE 263-9820

FMC CORPORATION
AIRLINE EQUIPMENT DIVISION
1115 Coleman Avenue, Box 145
San Jose, Ca. 95103

DATE:

ATTN: Mr. Ken Ledbetter,
Purchasing

RE: SPRAY EQUIPMENT PROPOSAL
No. UA-22379-1

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
ONE (1) LOT	DeVilbiss Special "DYNACLEAN" Water Wash Spray Enclosure; consisting of:		
	Four (4) ea. 14' x 10' exhaust chambers each with:		
	One (1) special booth cabinet: 12'H x 2'D Two (2) #LF-524 Sealed Type Fluorescent Reflectors, 120v, (less tubes. Two (2) 18" x 48" reflector openings. One (1) Chamber mounted, type "C" exhaust blower, w/20Hp/480v/3ph, explosion proof motor, for 16,800 c.f.m. delivery. One (1) Explosion proof water leveling device, 120v/60Hz.		Similar to Weidement Prime Booth, add 2 more washer sections total 6 washer sections.
	Shipped knocked and crated, approximate shipping weight: 21,760 lbs.		
		LOT PRICE:	
		APPROX. FREIGHT:	

PLEASE NOTE:
Above price for materials only and does not include any installation of any kind. Please refer to page 2/2 for installation proposal. Please refer to attached DeVilbiss Sketch for approximate layout.

CC: Mr. Robert Carlson, Mr. Don Hartman

This quotation subject to acceptance within 15 days. All Taxes shall be in addition to prices quoted.

SHIPMENT: 8-10 weeks, A.R.O.
F.O.B. Belleville, Mich.
TERMS: Not 10th. Prox.

ACCEPTED THIS ..... DAY OF ..... 19.....

..... BY: .....
(PURCHASER) (TITLE)

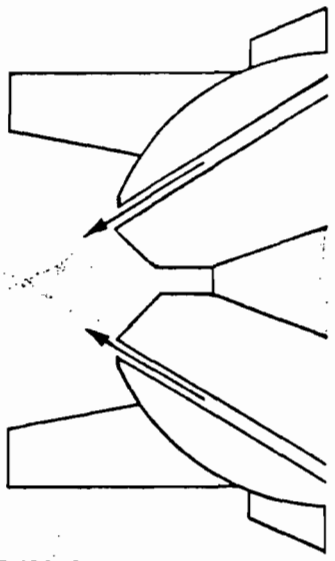
UNIV-AIR equipment co.

By:

Henry P. Aguero,
Industrial Sales

APPENDIX E

WALBERG CFA



CONICAL FILM ATOMIZATION . . . works with water-borne coatings where others fail.

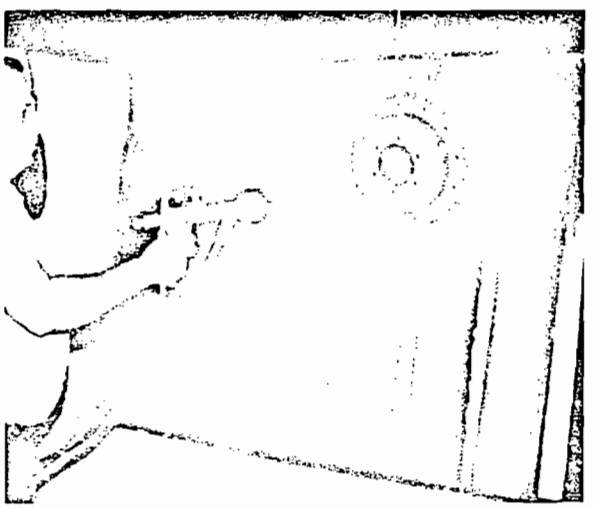
Over 60 Walberg systems are bringing production-line speed and efficiency to water-borne coating applications. Our equipment is spraying water-borne paint on everything from farm equipment to plastic shutters to office furniture, and we're doing it both electrostatically and non-electrostatically.

CFA, an exclusive Walberg development, makes this kind of performance possible without high air pressure and volume . . . and without attendent atomization and over-spray problems. It works where others fail.

If you are considering water-borne coatings, get the Walberg details. Also request.a copy of Factory Mutual Research "Evaluation of the Fire Hazard of Water-Borne Coatings."

NOW AVAILABLE IN A COMPLETE LINE OF AUTOMATED AND HAND EQUIPMENT

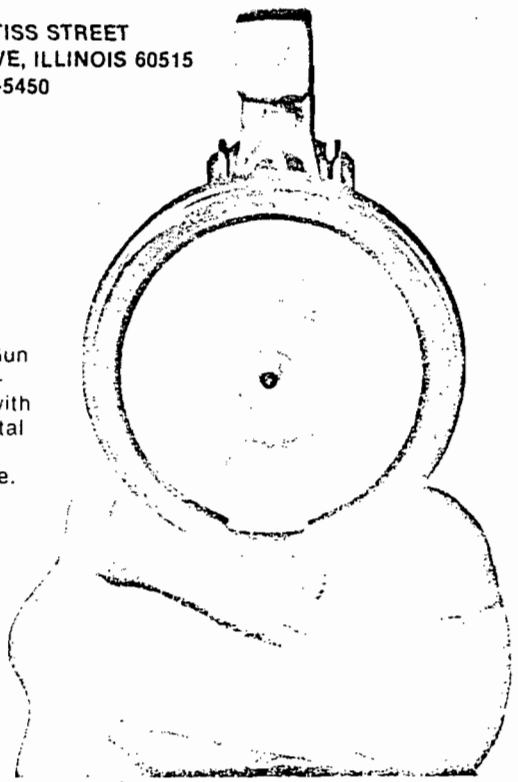
Auto-Static 300 System applies paint electrostatically, is automated for high production efficiency.



Aqua-Static 100 Hand Gun is designed specifically to apply water-borne coatings electrostatically. No high voltage cables.

ARVID C. WALBERG & CO.

2741/2755A CURTISS STREET
DOWNERS GROVE, ILLINOIS 60515
PHONE (312) 852-5450

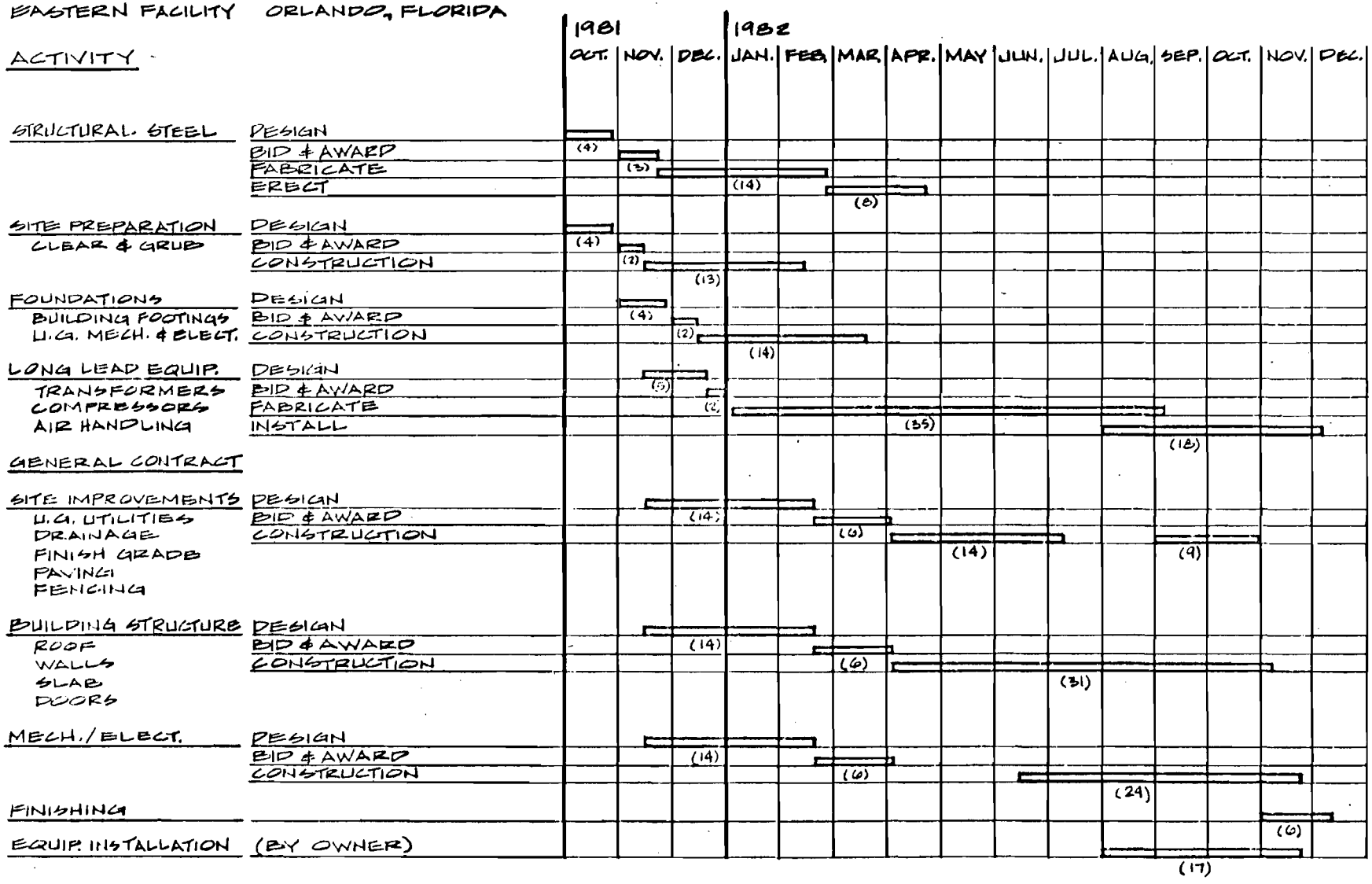


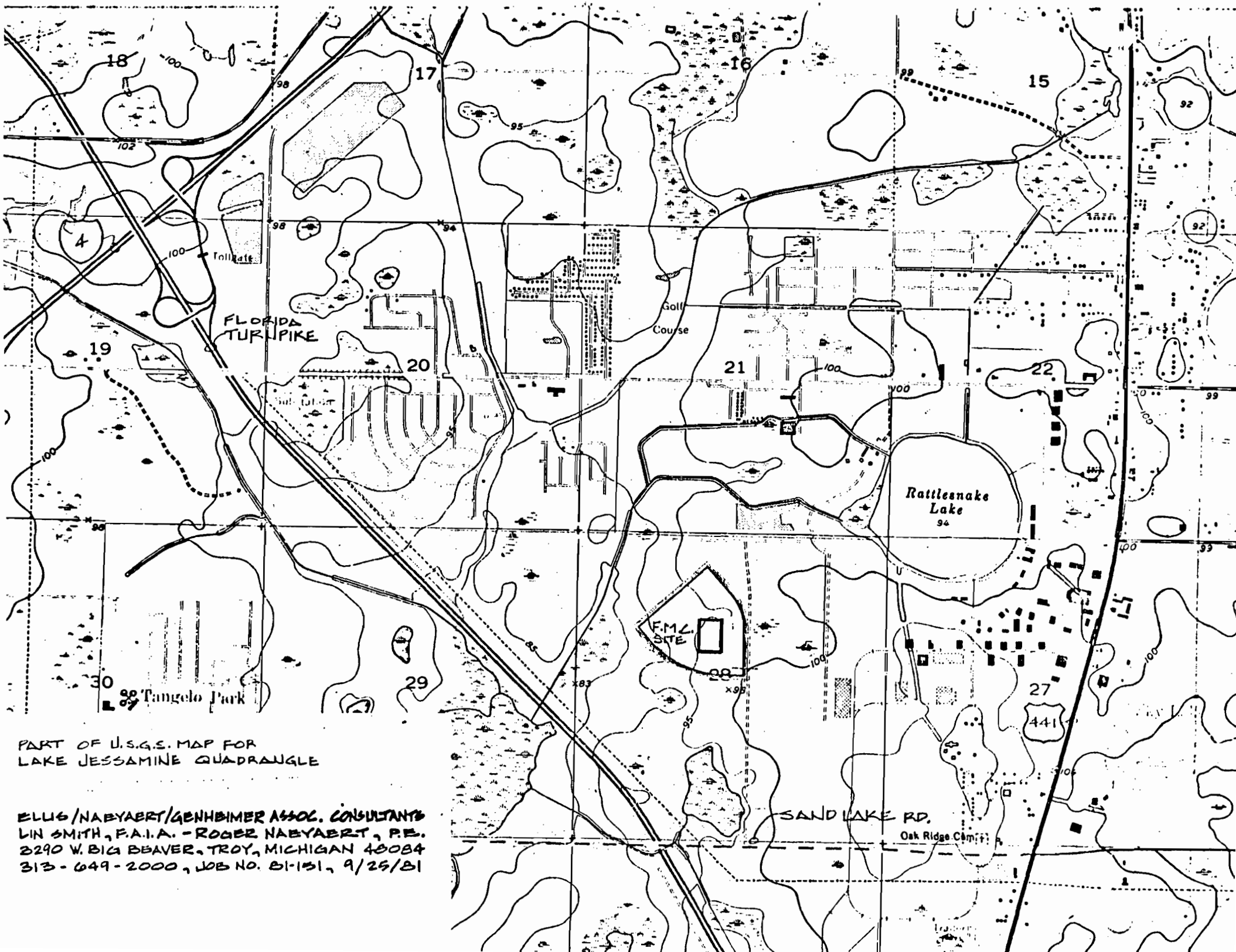
CFA 700 Hand Gun works in conventional systems with new environmental coatings. Fast, uniform coverage.

FMC CORPORATION

AIRLINE EQUIPMENT DIVISION
EASTERN FACILITY ORLANDO, FLORIDA

PRELIMINARY SCHEDULE
SEPTEMBER 25, 1981

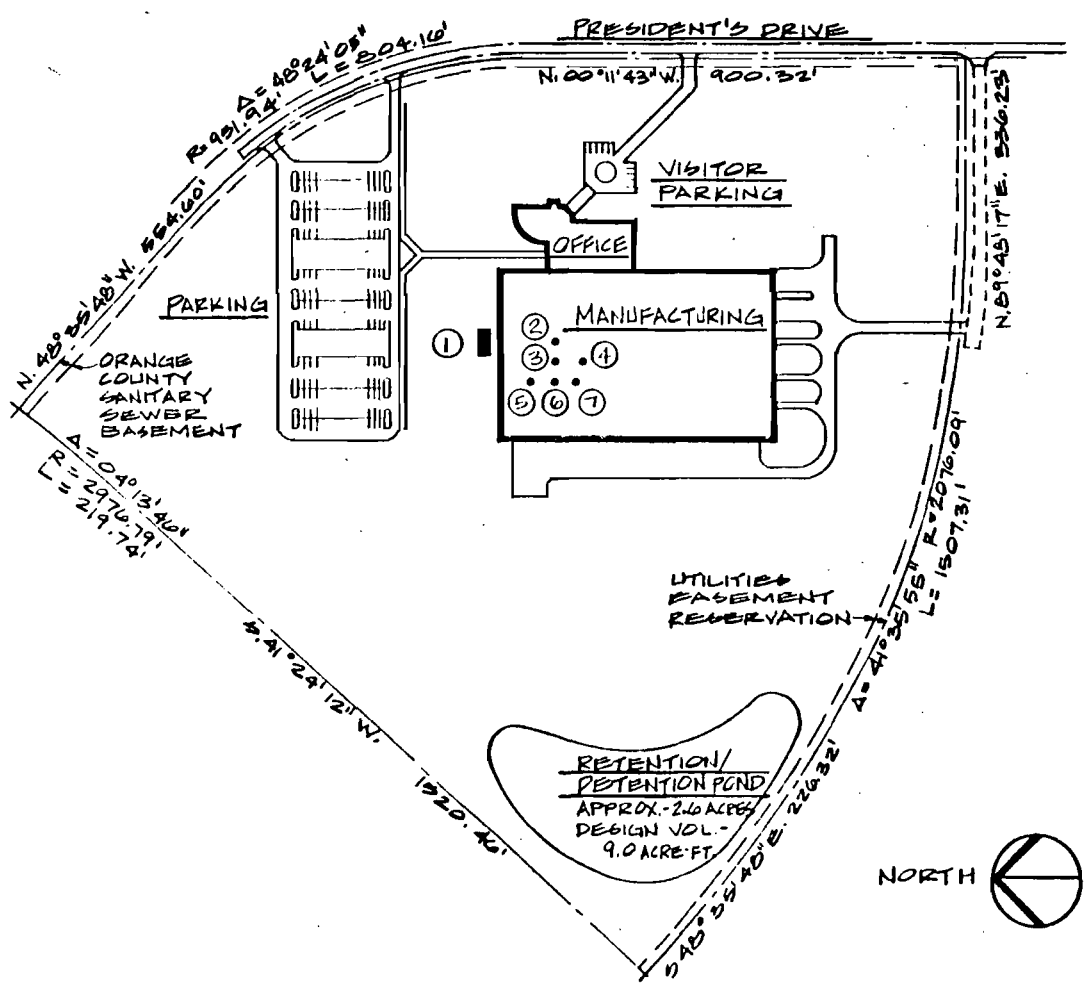




PART OF U.S.G.S. MAP FOR
LAKE JESSAMINE QUADRANGLE

ELLIS/NABYABERT/GENHEIMER ASSOC. CONSULTANTS
LIN SMITH, F.A.I.A. - ROGER NABYABERT, P.E.
3290 W. BIG BEAVER, TROY, MICHIGAN 48084
313 - 649 - 2000, JOB NO. 81-151, 9/25/81

APPENDIX F- SITE PLANS



FMC CORPORATION

AIRLINE EQUIPMENT DIVISION
EASTERN FACILITY ORLANDO, FLORIDA

LEGEND

① UNDERGROUND TANKS
1 - 2000 GAL. GASOLINE
1 - 2000 GAL. DIESEL FUEL
2 - 2000 GAL. HYDRAULIC OIL
1 - 2000 GAL. WASTE OIL
② PRIME PAINT SPRAY BOOTH EXHAUST
③ PHOSPHATE LINE EXHAUSTS
④ PRIME PAINT DRYING OVEN EXHAUST
⑤ FINAL PAINT SPRAY BOOTH EXHAUSTS
⑥ PRIME PAINT SPRAY BOOTH EXHAUSTS
⑦ GRIT BLAST BOOTH EXHAUST

SITE PLAN

NO SCALE

ELLIS/NAEYAERT/GENHEIMER ASSOC. CONSULTANTS
LIN SMITH, F.A.I.A. - ROGER NAEYAERT, P.E.
3290 W. BIG BEAVER, TROY, MICHIGAN 48084
313 - 649 - 2000, JOB NO. 81-151, 9/25/81

APPENDIX H

EMISSION CALCULATIONS

PRIMER USAGE

Assumptions

Current primer usage in San Jose on PL2 MDL

Loaders	=	3750 gals/yr
Projected Orlando usage, based on conventional primer	=	4096 gals/yr
Conventional primer: Ken Flash by Sherwin-Williams		
% Volume	=	37
DuPont Hi - Solids Primer:		
% Volume Solids	=	51.8
VOC	=	3.5 #/gal

Conventional Primer: (Kem Flash)	
Projected gallonage for Orlando (gals/yr)	4096
VOC (#/gal)	3.97
Emission from paint = gallons X VOC (#/yr)	16261
Thinners added to primer @ 25% of primer (gals/yr)	1024
VOC of Thinner (#/gal)	7.5
Emission of Thinners = gals. x VOC (#/yr)	7680

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TABLE PRIME USAGE (SMALL PARTS & WELDMENTS)

Conventional Kem Flash Primer - Not to be used in Orlando. Calculations only necessary to establish hi-solids primer	
Total primer projected usage	
(gals/yr)	4,096
% Vol. Solids	37
Total solid paint required to prime parts	
(gals/yr) = Primer usage x % Vol Solids	1,515
Hi-Solids Primer -	
Total solid paint required to prime parts (gals/yr)	1,515
% Vol. Solids of DuPont primer	51.8
Total hi-solids primer required (gals/yr) = Total solid paint / % Vol. Solids	2,924
VOC of Prime (#/gal)	3.5
Total emissions of hi-solids primer (#/yr) = Total primer used X VOC	10,234

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EFFECT OF TRANSFER EFFICIENCY ON PRIMER USAGE

The above calculations assume that the transfer efficiency using the conventional primer (Kem Flash by Sherwin-William) will remain the same when Hi-solids and primers are used.

To investigate the effect of transfer efficiency in paint usage the equation of Appendix I can be used.

We assume now that the transfer efficiency that we are currently achieving and on which our projected figures are based, is 30%. We anticipate that the use of electrostatic spray will improve the transfer efficiency to at least 65%.

From Appendix I;

$$T_2 = \frac{T_1 \cdot C_1}{C2}$$

Where T_2 = Amount of paint used when the transfer efficiency is C_1.

Similarly for T_1.

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	gals/yr	VOC #/yr
Hi-Solids Primer		
Primer usage @ 30% efficiency	2,924	10,234
Primer usage @ 65% efficiency	1,349	4,723
Primer savings due to increase in transfer efficiency	1,575	5,511

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TOUCH-UP PRIMER

Assumptions

Touch-up primer usage anticipated for Orlando, based on conventional paint.

PL2	=	1 gal/loader
MDL	=	1 gal/loader
Total PL2 loaders	=	270/yr
Total MDL loaders	=	38/yr
Total loaders	=	308/yr

No electrostatic used for touch-up.

Conventional Primer:	
Total primer usage (gals/yr)	308
% Vol. Solids	37
Total solids primer (gals/yr) = Primer usage x % Vol Solids	114
VOC (#/gal)	3.97
Emissions from primer = Primer usage X VOC (#/yr)	1223
25% solvent added to conventional primer (gals/yr)	77
VOC of solvent (#/gal)	7.5
Emission from solvent = Solvent used x VOC (#/yr)	57.8

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Total Emissions from primer + solvent (#/yr)	1,801
Total gallons primer + thinner (gals/yr)	385
High Solids Primer	
Total solids of primer required (gals/yr)	114
% Vol solids of primer	51.8
Total primer required (gals/yr) = Total solids / % Vol. Solids	220
VOC of primer (#/gal)	3.5
Emissions of high-solids primer (#/yr) -- Paint usage X VOC	770

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TOP COAT USAGE

Assumptions

Total MDL Loaders	=	38/year
Total PL2 Loaders	=	270/year
% white, grey and blue	=	40%
% custom colors	=	60%

Conventional Paint (all colors):

Current usage; MDL Loaders	=	16 gal/loader
Current usage; PL2 Loaders	=	11 gals/loader
% Volume Solids	=	42.3%
VOC	=	4.21 #/gal

TO CALCULATE PROJECTED USAGE OF TOP COAT IN ORLANDO

Conventional paint:

For MDL Loaders	=	16 x 38	=	608
For PL2 Loaders	=	11 x 270	=	2970
Total	=		=	3578 gals

White, grey, blue @ 40%	=	1431 gals/yr
Custom colors @ 60%	=	2147 gals/yr
		3578 gals/yr

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- Basis of this table is that we will use high solids top coat for white, grey and blue at plant start-up.
- Use conventional enamel for custom colors until 1984.
- Convert custom colors to high solids by 1984.

TABLE: TOP COAT USAGE AND VOC EMISSIONS FOR PL2 AND MDL LOADERS. 1982 and 1984

	White, Grey Blue	Custom Colors
Conventional paint projected usage:		
gals/yr	1,431	2,147
% Vol. Solids	42.3	42.3
Total solid paint = total paint (gals/yr) X % Vol. Solids (gals/yr)	605	908
VOC of enamel paint (#/gal)	4.21	4.21
Emission (#/yr) =gals paint X VOC	N/A for 1982	9,039
25% Solvent added to conventional paint (gals/yr)	"	53.7
VOC of thinners (#/gal)	"	7.5
Emissions (#/yr) = gals thinners X VOC	"	4,208
Total emissions of up to 1984 #/yr = VOC paint + VOC solvent	"	1,306.7
Total gals/yr top coat + thinners	"	2,684

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(For white, grey, blue _____ 1982)	White, Grey Blue	Custom Colors
High Solids Top Coat For custom colors after 1984)		
Total solid paint require (gals/yr)	605	908
% Vol. Solids	53.1	53.1
Total top coat usage = total solid paint / % Vol. Solids (gals/yr)	1,139	1,710
VOC (#/gal)	3.4	3.4
Emissions = VOC + top coat usage (#/yr)	3,873	5,814

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EFFECT OF TRANSFER EFFICIENCY ON TOP COAT USAGE

In the above table transfer efficiency was not relevant to the calculation. It was assumed that the transfer efficiency using conventional and high-solids top coats was the same.

The equation for transfer efficiency are given in Appendix I.

We assume now that the transfer efficiency that we are currently achieving in our finishing operation is approximately 55%. We anticipate that the use of electrostatic spray will improve transfer efficiency to at least 75% using conventional air spray, and even higher using air less spray.

From Appendix I;

$$T_2 = \frac{T_1 \ C_2}{C_2}$$

Where T_2 = Amount of paint used when transfer efficiency is C_1.

T_2 = Amount of paint used when transfer efficiency is C_2.

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TABLE: EFFECT OF TRANSFER EFFICIENCY ON TOP COAT USAGE

	Gals/Yr	VOC #/Yr
Conventional Paint = Used for custom colors during period 1982-1984		
Top coat & thinner usage @ 55% efficiency	2,684	13,067
Top coat & thinner usage @ 75% efficiency	1,968	9,582
Total savings due to 90% increase in transfer efficiency	716	3,485
High Solids Top Coat - (White blue and grey) from 1982 onwards)		
Top coat usage @ 55% efficiency	1,139	3,873
Top coat usage @ 75% efficiency	835	2,840
Total savings due to 20% increase in transfer efficiency	304	1,033
High Solids Top Coat - (Custom colors after 1984)		
Top coat usage @ 55% efficiency	1,710	5,814
Top coat usage @ 75% efficiency	1,254	4,264
Total savings due to 20% increase in transfer efficiency	456	1,550

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DATA FOR CALCULATIONS

	Conventional Primer	High Solids Primer	Conventional Top Coat	High Solids Top Coat
Manufacturer	Sherwin-Williams	DuPont	Sherwin-Williams	DuPont
Trade Name	Kem Flash	Tuffcoat	Acrylyd	Tuffcoat
Code Number	E611V12	481-H-63015	G74RY21 (Red)	917-H-61076 (White)
% Volume Solids	37.0	51.8	40.5	53.1
% Wt. Solids	63.5	71.8	51.2	67.0
Wt/Gal (#/gal)	10.87	12.3	8.9	10.4
VOC (minus water (#/gal)	3.97	3.5	4.21	3.4
(gm/lt)	476	420	505	408
Approximate Cost (Depends on color) $/gal	7.70-930	13.50	15.30	17.00

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APPENDIX I

EFFECT OF USING ELECTROSTATIC SPRAY

The effect of transfer efficiency is calculated as follows:

a = Ft^2 to be painted.

b = Theoretical coverage of the paint in ft^2/gal, assuming 100% transfer efficiency.

c = Transfer efficiency

b_1 = Actual doverage of the paint at a transfer efficiency of C_1.

$b_1 = b.c_1$

T = Amount of paint required for the job.

T_1 = Amount of paint required when the transfer efficiency is C_1.

T_2 = Amount of paint required when the transfer efficiency is C_2.

$$T_1 = \frac{a}{b_1}$$

$$T_1 = \frac{a}{bc_1}$$

$$T_2 = \frac{a}{bc_2}$$

$$T_2 = \frac{T_1 bc_1}{bc_2}$$

$$T_2 = \frac{T_1 C_1}{C_2}$$

$$T_1 - T_2 = \frac{a}{bc_1} - \frac{a}{bc_2}$$

$$= \frac{a}{b}\left(\frac{1}{bc_1} - \frac{1}{bc_2}\right)$$

$$= \frac{a}{b}\left(\frac{1}{C_1} - \frac{1}{C_2}\right)$$

$\frac{a}{b} = T$ = Theoretical amount of paint used assuming 100% efficiency.

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FMC Material Handling Group
Chicago

Interoffice

To R. L. Carlson

Date September 4, 1981

cc A. J. Trimble
B. R. van Eck

From W. G. Bush

Subject DELEGATION OF SIGNATURE AUTHORITY
Re: Permitting for New
AED Eastern Facility

In accordance with the February 20, 1981, Resolution of FMC Corporation's Board of Directors regarding signature authority, as Group Manager of FMC's Material Handling Group, which Group includes the Airline Equipment Division (AED), I hereby delegate to you as Manufacturing Manager of AED the authority to sign applications for permits, including environmental permits, and related documents pertaining to permits needed for the new AED eastern facility, presently proposed to be constructed in Orlando, Florida. This delegation is effective until revoked in writing.

W. G. Bush

VV

FMC Airline Equipment Division
San Jose

Interoffice

To R. L. Carlson

Date 9/8/81

cc W. B. Bush
B. R. Van Eck

From A. J. Trimble

Subject DELEGATION OF SIGNATURE AUTHORITY
RE: PERMITTING FOR NEW
AED EASTERN FACILITY

In accordance with the February 10, 1981 Resolution of FMC Corporation's Board of Directors regarding signature authority, as Division Manager of FMC's Airline Equipment Division, I hereby delegate you as Manufacturing Manager of AED the authority to sign applications for permits, including environmental permits, and related documents pertaining to permits needed for the new AED eastern facility, presently proposed to be constructed in Orlando, Florida. This delegation is effective until revoked in writing.

A. J. Trimble
Division Manager

gh

FMC CORPORATION

Resolution

RESOLVED, that the Board of Directors of FMC Corporation (the "Corporation") hereby grants the following signature authority:

1. Officers. The Chairman of the Board, the President, any Vice President, the Secretary, the Treasurer and the Controller of the Corporation are each authorized, in that capacity, to execute, and to delegate to any person authority to execute, all written instruments whatsoever including, without limitation, deeds, leases, agreements, bids, contracts, bonds, powers of attorney and proxies;

2. Group Managers. Each person employeed by the Corporation as a Group Manager is authorized, in that capacity, to execute, and to delegate to persons employed in his Group authority to execute, all written instruments whatsoever pertaining to matters which are in the ordinary course of the business of the Group;

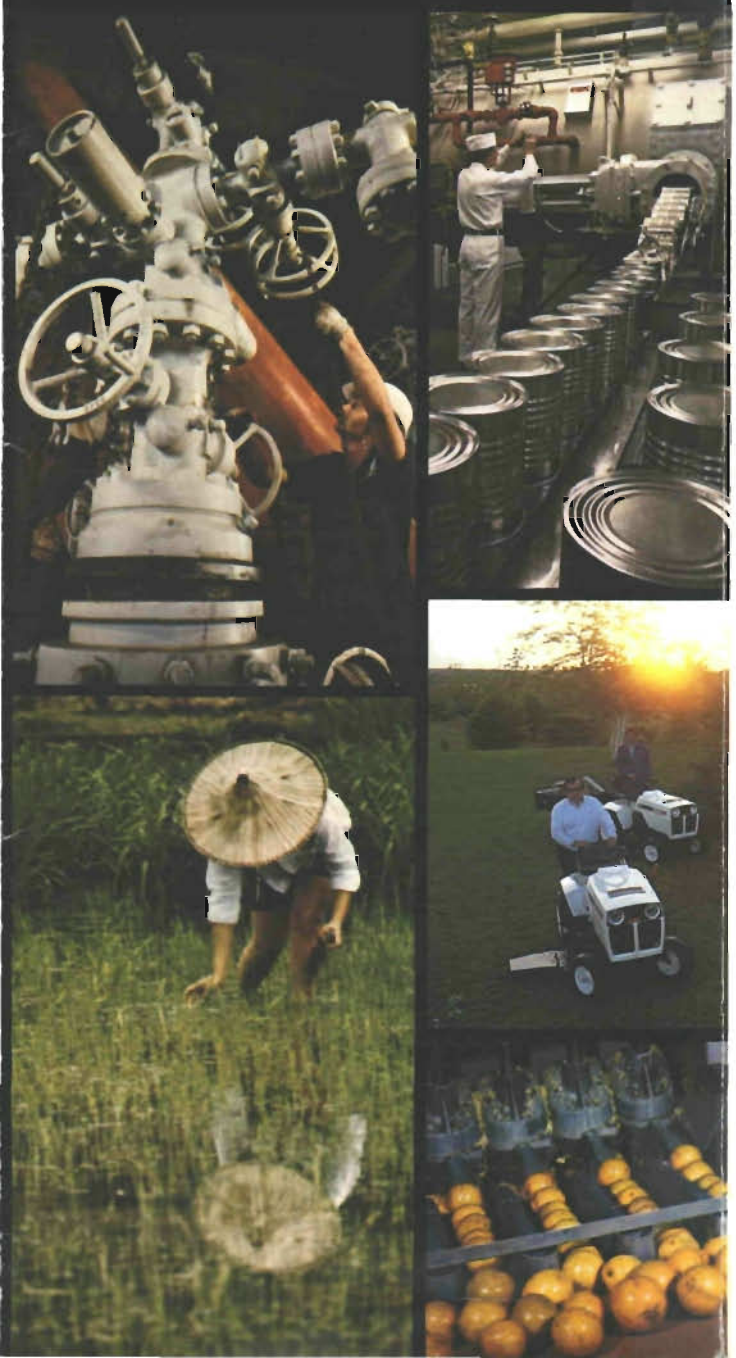
3. Division Managers. Each person employed by the Corporation as a Division Manager is authorized, in that capacity, to execute, and to delegate to persons employed in his Division authority to execute, all written instruments whatsoever pertaining to matters which are in the ordinary course of the business of the Division;

provided, that any delegation of signature authority pursuant to this resolution shall be (i) effective only if in writing and when filed with the Secretary of the Corporation, (ii) limited as set forth in said delegation and (iii) effective on the date appearing thereon for the period specified therein or if no period is specified until revoked in writing; and provided, further, that any person may rely on a certificate signed by the Secretary or any Assistant Secretary of the Corporation to the effect that a particular person has specified signature authority pursuant to this resolution; and

RESOLVED, FURTHER, that the foregoing resolution supersedes the resolution relating to general signature authority adopted on June 24, 1977, provided that any exercise of signature authority pursuant to a delegation before the adoption of this resolution is hereby ratified and approved.

FMC

The company we keep



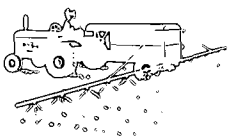
The company we keep
is an international producer of agricultural chemicals, construction equipment, defense materiel, industrial chemicals, material handling, petroleum, and power transmission equipment, and special products.

FMC is one company serving many important needs in world markets. As the result of many years of experience, FMC has special expertise in food, energy and the environment, and these are important fields for many of the company's products and services. But the world of FMC extends far beyond these critical areas to serve other important needs such as chemicals, construction, material handling and power transmission.

Since most of the company's products are sold to commercial users, they more often than not end up as virtually invisible but highly essential ingredients in a wide variety of well-known consumer products or as components in manufacturing or processing operations. For this reason, there is little public recognition of FMC, even though it is a major industrial corporation with annual sales of $2.29 billion. FMC operates more than 132 production facilities in 32 states and 13 foreign countries and employs approximately 43,000 people worldwide.

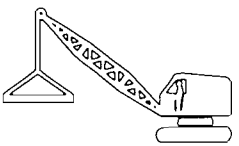
We hope this booklet will help you to know FMC and its products a little better.

Agricultural Chemicals



Agricultural chemicals produced by FMC are making increasingly strong contributions to world food production in nearly every land. The company is one of the world's leading suppliers of insecticides, fungicides and herbicides, including many unique products developed by FMC research. For instance, *Furadan*®, a wide spectrum insecticide/nematicide, has shown extraordinary results on corn, rice, sugarcane and other essential food crops. *Pounce*™, a synthetic pyrethroid insecticide, is proving extremely effective at very low application levels. Products currently under development include a growth-enhancing chemical to stimulate crop yield and new herbicides to protect soybean, corn and cotton crops.

Construction Equipment

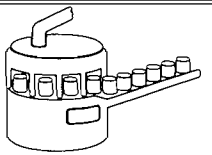


Cutting roadways, laying pipelines, lifting tons of building materials, FMC construction equipment helps contour the earth to man's purposes. An acknowledged leader in this field, FMC produces self-propelled cranes and excavators; truck-mounted cranes; and related equipment used around the world for trenching, dredging, earthmoving, lifting and other materials transfer tasks. In the forest products industry, specially designed logging vehicles reduce production costs and improve the environmental aspects of timber harvesting.

Defense

Working in cooperation with U.S. Armed Forces, FMC designs and produces amphibious, highly mobile tracked vehicles for personnel and cargo transport. The company also supplies ship-mounted missile launching systems and automatic gun mounts under contract with the naval ordnance program. Company-owned foundries produce high-quality carbon steel, iron, aluminum and bronze castings and carbon steel forgings.

Food Machinery

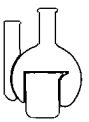


FMC has been involved in world food production since the company began and today is an acknowledged leader in food preparation, processing and handling machinery. Company technologists and engineers combine to provide a unique capability for researching, planning and implementing food production programs on virtually any scale.

A variety of special crops such as tomatoes, citrus fruit, corn, peas and potatoes are efficiently harvested with FMC machinery. Other machinery helps plant, protect, harvest, prepare, process and package almost any food product one can name. Popular convenience and prepared foods, too, are pre-portioned and packaged® on FMC automatic machines.

In boxes, bottles, cartons, cans, bags and with overwraps—myriad products are packaged on FMC machinery. High-speed rotary multi-color presses print packaging papers, films, foils and laminates.

Industrial Chemicals



Phosphorus, alkali and specialty chemicals are a major part of FMC's business. More than a processor, FMC owns extensive resources of raw materials. The company, for instance, is the world's largest producer of natural soda ash, an essential ingredient in the manufacture of glass, paper, detergents and many other products. FMC hydrogen peroxide, used extensively for textile bleaching, has found increasing application for odor control in wastewater treatment. Phosphates and chlorinated dry bleaches for detergents, cleansers and other specialty uses as well as flame retardant plasticizers, are among scores of other chemicals FMC supplies to industrial customers.

Operations in the United States

AGRICULTURAL CHEMICAL GROUP 215/299-6000
2000 Market St, Philadelphia PA 19103

CONSTRUCTION EQUIPMENT GROUP
Crane & Excavator Division 319/398-3200
1201 6th St SW, Cedar Rapids IA 52406
Construction Equipment International Division 319/398-3200
1201 6th St SW, Cedar Rapids IA 52406
Woodlands Equipment Division 408/289-0111
2025 Gateway Pl, box 1852, San Jose CA 95109

DEFENSE EQUIPMENT GROUP
Northern Ordnance Division 612/560-9201
4800 E. River Rd, Minneapolis MN 55421
Ordnance Division 408/289-0111
1105 Coleman Ave, box 1201, San Jose CA 95108
Steel Products Division 205/237-2841
2101 W 10th St, box 1030, Anniston AL 36201

FOOD MACHINERY GROUP
Agricultural Machinery Division 501/935-1970
5601 E Highland Dr, Jonesboro AR 72401
Citrus Machinery Division 813/683-5411
Fairway Ave, box 1708, Lakeland FL 33802
Food Machinery International Division 408/289-0111
1450 Coleman Ave, box 1178, San Jose CA 95108
Food Processing Machinery Division 408/289-0111
333 W Julian St, box 1120, San Jose CA 95108
Packaging Machinery Division 215/657-2400
200 Welsh Rd, Horsham PA 19044

INDUSTRIAL CHEMICAL GROUP
Alkali Chemicals Division 215/299-6000
2000 Market St, Philadelphia PA 19103
Phosphorus Chemicals Division 215/299-6000
2000 Market St, Philadelphia PA 19103
Specialty Chemicals Division 215/299-6000
2000 Market St, Philadelphia PA 19103

MATERIAL HANDLING GROUP
Airline Equipment Division 408/289-0111
1115 Coleman Ave, box 145, San Jose CA 95103
Engineered Systems Division 408/289-0111
328 Brokaw Rd, box 450, Santa Clara CA 95052
Environmental Equipment Division 312/893-1800
1800 FMC Drive West, Itasca IL 60143
Marine & Rail Equipment Division 503/228-9281
4700 Northwest Front Ave, box 3616, Portland OR 97208
Material Handling Equipment Division 412/479-8011
Homer City PA 15748
Material Handling Systems Division 215/822-0581
3400 Walnut St, Colmar PA 18915
Mining Equipment Division 304/363-7700
101 Twelfth St, box 992, Fairmont WV 26554
Semiconductor Products Division 303/469-2161
800 Hoyt St, Broomfield CO 80020

PETROLEUM EQUIPMENT GROUP
Fluid Control Division 713/461-3100
10516 Old Katy Rd, box 19465, Houston TX 77024
Wellhead Equipment Division 713/448-0211
1777 Greens Rd, box 3091, Houston TX 77001

POWER TRANSMISSION GROUP
Bearing Division 317/241-9201
7601 Rockville Rd, box 85, Indianapolis IN 46206
Chain Division 317/267-2200
220 S Belmont Ave, box 3468, Indianapolis IN 46206
Drive Division 215/225-6000
2045 W Hunting Park Ave, Philadelphia PA 19140
Power Control Division 414/272-1100
120 N Broadway, Milwaukee WI 53202

SPECIAL PRODUCTS GROUP
Automotive Service Equipment Division 501/327-4433
Exchange Ave, Conway AR 72032
Fire Apparatus Operation 317/675-2185
516 Dearborn St, Tipton IN 46072
Food & Pharmaceutical Products 215/299-6000
2000 Market St, Philadelphia PA 19103
Industrial Brush Operation 714/623-2171
1250 E Philadelphia St, box 2608, Pomona CA 91766
Industrial Packaging Operation 215/299-6000
2000 Market St, Philadelphia PA 19103
Marine Colloids Division 207/594-4436
P.O. box 308, Rockland, ME 04841
Outdoor Power Equipment Division 414/284-5521
215 S Park St, Port Washington WI 53074
Sweeper Division 714/629-4071
1201 E Lexington St, Pomona CA 91766

AFFILIATES
Avicon, Inc.*
COGAS Development Company* *Nonconsolidated

Operations in other nations

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Malco Industries, Ltd.*
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FMC International, A.G.
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Belgium
FMC Europe, S.A.
Regional Office, Brussels
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FMC Food Machinery Europe, S.A.
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Material Handling Equipment Division
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FMC Food Machinery France, S.A.
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FMC Machinery (Germany) G.m.b.H.
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FMC Packaging Machinery S.p.A.
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FMC/Link-Belt Mexicana, S.A. de C.V.
Plasticos Extruidos, S.A.
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FMC Maroc, S.A.*
Netherlands
FMC Nederland, B.V.
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Sweeper Division
Philippines
FMC International, A.G.
Agricultural Machinery Division
Singapore
FMC Petroleum Equipment Southeast Asia Pte. Ltd.
South Africa
FMC South Africa (Pty.) Ltd.
Food Machinery Division
Material Handling and Power Transmission Division
Spain
FMC Spain, S.A.
Food Machinery Española, S.A.*
Foret, S.A.
Tarnos Instalaciones Industriales, S.A.*
Switzerland
FMC International, A.G.
Food Machinery International Division
Sweeper Division
United Kingdom
FMC Corporation (UK), Ltd.
Food Machinery Division
Petroleum Equipment
Chlor-Chem, Ltd.*

*Nonconsolidated affiliate

Printed in U.S.A. 010A378100

FMC

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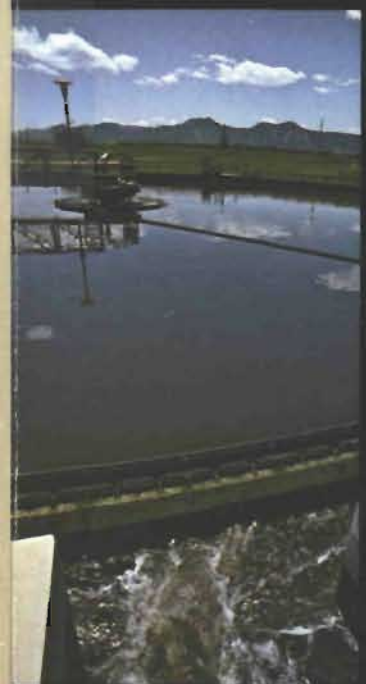
Chicago Illinois 60601



FMC

Material Handling

For nearly a century, FMC has been an innovator in material handling. Designed for bulk or unitized materials, FMC equipment handles products as diverse as bathtubs, bauxite ore and breakfast cereals. Massive systems also have been erected to convey, process, store and reclaim coal and other materials. Unit handling systems for such diverse needs as conveying hot ingots—to handling, organizing and assembling tiny parts—are engineered and installed by FMC.

FMC equipment is important in mining operations. Coal mines are worked with FMC transport vehicles, conveyors and roof drills. Ventilating equipment made by FMC helps provide a safe working environment for miners, while conveying equipment, vibrating screens and dryers are widely used to process coal. On a larger scale the company designs and produces entire coal preparation plants. FMC also is active in government-sponsored research programs to improve mine safety.

For the transportation industry, the company designs and builds flatcars, boxcars, gondolas and other special purpose railcars. FMC-built barges are used to transport products ranging from crude oil and refined products to lumber or even railroad cars. Airport cargo handling systems as well as ground support and aircraft maintenance equipment designed and built by FMC serves nearly every major airline in the world.

FMC has pioneered innovations in the environmental equipment field for half a century. For municipal and industrial needs, FMC supplies water and wastewater treatment systems to meet ever-increasing ecological requirements. FMC pollution control equipment also includes a unique double alkali scrubber system that removes particulates and sulfur dioxide emissions from stack gases.

Petroleum Equipment

From wellhead to waiting tanker, FMC plays a vital role in producing and handling petroleum products. Much of the world's oil production comes into direct contact with FMC technology, beginning at the "Christmas tree" flow control assemblies installed at the wellhead.

Ship-to-shore loading or unloading of tankers, with products ranging from supercold cryogenics to petroleum or hot chemicals, can be accomplished quickly and efficiently with FMC marine loading systems. Other important FMC products, such as valves, gates, unions and swivel joints, are in extensive use for oil drilling, refining and distribution systems. FMC fluid control equipment is used to handle fluids, gases or semisolids under extreme temperatures in all types of industrial applications.

Power Transmission

Wherever mechanical power is produced, FMC may be involved in putting that power to work. The company's power transmission capability extends to virtually any type of mechanical drive, and includes ball and roller bearings, chains and sprockets, speed reducers, and variable speed drives. FMC is also a leading producer of couplings, electric brakes and clutches, solenoids and overloads.

Special Products

FMC's line of lawn and garden-care equipment offers many unmatched features. For instance, a garden tractor that operates below current noise level standards, and a lawn mower that mulches grass as it cuts . . . automatically. Both are part of an extensive FMC product line that includes garden tractors, rider and walk-behind mowers, rotary tillers and related equipment for landscape architects, nurserymen or home, park and playground maintenance.

FMC talents for problem solving are many and varied, and they have resulted in a variety of special products. For example, Avicel® microcrystalline cellulose, an inert binder used in tablet manufacture, also finds wide use as an extender, stabilizer or carrier in a variety of food products.

FMC also develops and markets custom-tailored hydrocolloids (water soluble polymers) which are produced from seaweed. These hydrocolloids are used to gel, thicken, suspend and otherwise modify the physical properties of processed foods, cosmetics, pharmaceuticals, industrial chemical specialties and similar products.

Avitene® microfibrillar collagen hemostat produced and marketed by Avicon, Inc., 50% owned by FMC, is used to stop bleeding resulting from injuries or during surgery.

Industrial sweepers and scrubbers and municipal street sweepers, including one that cruises at 50 mph and sweeps at 10 mph, are designed and built by FMC. Also, the industrial brushes for sweepers, as well as those used in agriculture and industry, are FMC products. Municipalities and rural areas alike use FMC fire-fighting apparatus equipped with a high pressure fog system which extinguishes fires using only one-tenth of the water required by conventional means.

FMC automotive service equipment diagnoses engine problems, analyzes exhaust gases, services brakes, balances wheels, straightens frames and performs other jobs needed to keep cars and trucks running safely and efficiently.

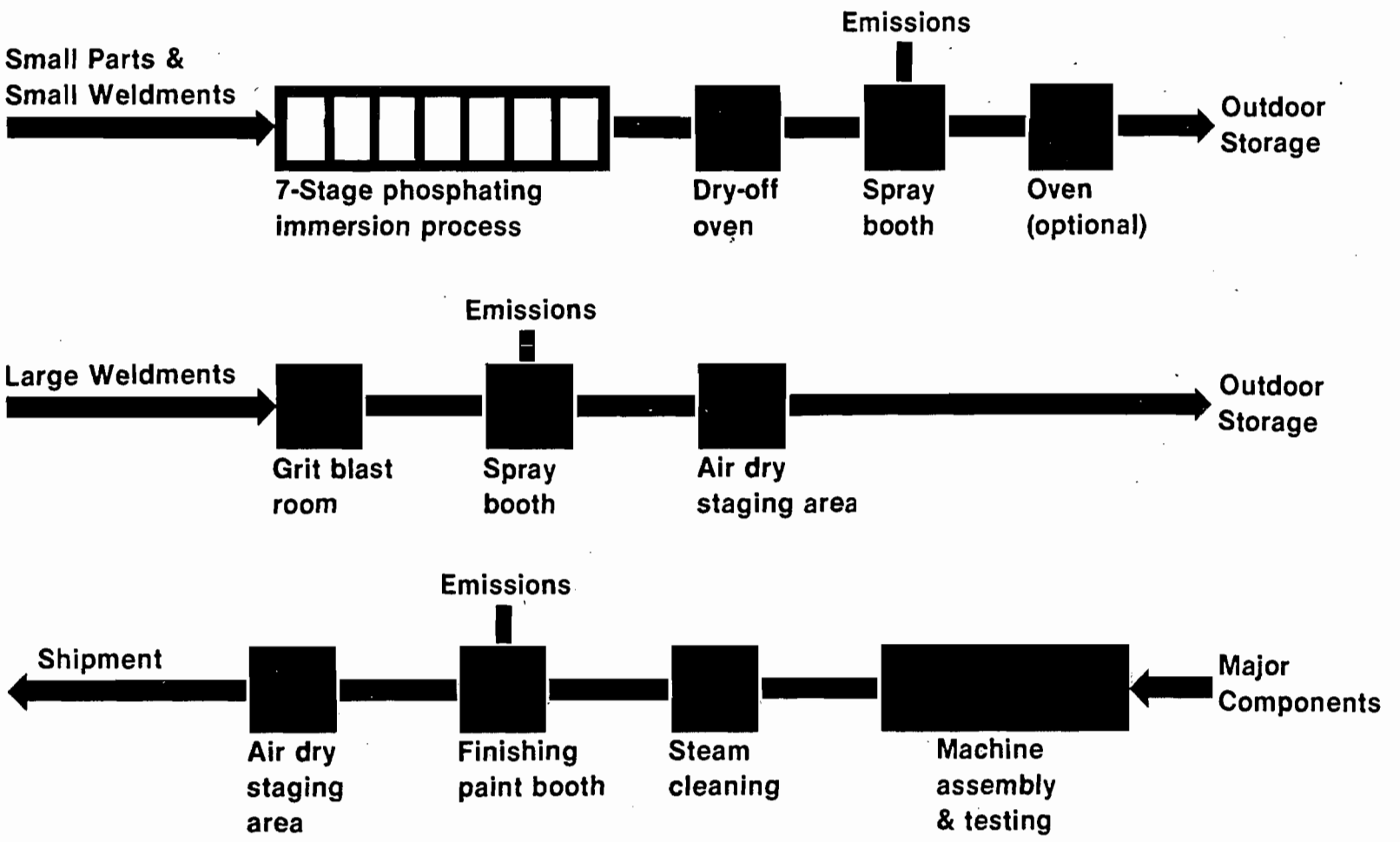
FMC is a major supplier of nonmetallic strapping systems which are finding ever wider acceptance because of their ease of application and safety.

FMC Corp
Sept 10, 1981

CH FANCY	BAQM, TALLAHASSEE	9044881344
RON JOSEPH.	FMC CORP.	(408) 289-5770
Bob Williamson	DEPT of Commerce	THC
BOB CARLSON	FMC - AIRLINE EQUIP DIV.	(408) 289-2418
RICK TESCH	INDUSTRIAL DEV. COMMISSION OF MID-FLA. ORLANDO	
Bill Thomas	DER - BAQM	(904) 4881344
Joe Tessitore	Cross/Tessitor Assoc	305-898-61x
John Howell	FMC Corp (Environmental Planning Dept.)	215-299-6203

file - permit file

Proposed Finishing Procedure



Proposed Coating System For Orlando Plant

Coating System	Current System, 1981			Hypothetical Compliant System, 1982		
	Type of Paint	VOC #/gal	Emissions #/yr	Type of Paint	VOC #/gal	Emission #/yr
Priming of small parts & weldments	Conventional Alkyd	3.97	16,261	Hi-Solids Alkyd	3.5	10,234
Thinners added to primer	—	7.5	7,680	N/A	Nil	Nil
Touch-up priming of machines	Conventional Alkyd	3.97	1,223	Hi-Solids Alkyd	3.5	770
Thinners added to primer	—	7.5	578	N/A	Nil	Nil
Finishing:						
White, grey, blue	Conventional Acrylic	4.21	6,025	Hi-Solids Alkyd	3.5	3,873
Custom colors	Conventional Acrylic	4.21	9,039	Hi-Solids Alkyd	3.5	5,814
Thinners added to enamel	—	7.5	6,709	N/A	Nil	Nil
Total Emissions #/yr			47,515			20,691

Proposed Coating Systems To Reduce Emissions

Coating System	Hypoth. Compliant System, 1982			Proposed System Using Eng. Controls 1982			1984		
	Type of Paint	VOC #/gal	Emissions #/yr	Type of Paint	VOC #/gal	Emissions #/yr	Type of Paint	VOC #/gal	Emissions #/yr
Priming of small parts & weldments	Hi-Solids Alkyd	3.5	10,234	Hi-Solids Alkyd	3.5	4,723	Hi-Solids Alkyd	3.5	4,723
Thinners added to primer	—	—	—	—	—	—	—	—	—
Touch-up priming of machines	Hi-Solids Alkyd	3.5	770	Hi-Solids Alkyd	3.5	770	Hi-Solids Alkyd	3.5	770
Thinners added to primer	—	—	—	—	—	—	—	—	—
Finishing:									
White, grey, blue	Hi-Solids Alkyd	3.5	3,873	Hi-Solids Alkyd	3.5	2,840	Hi-Solids Alkyd	3.5	2,840
Custom colors	Hi-Solids Alkyd	3.5	5,814	Conv. Acrylic	4.21	6,628	Hi-Solids Alkyd	3.5	4,264
Thinners added to enamel	—	—	—	—	7.5	2,954	—	—	—
Total Emissions #/yr			20,691			17,915			12,597

Summary of VOC Emissions