rcd 3-7-89 PM

HARRIS

FS-JRK-121-89

March 3, 1989

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

Reference: HARRIS SEMICONDUCTOR
B-57 Consolidated Air Permit

Dear Mr. Fancy:

On February 17, 1988, representatives from Harris and the Florida DER met in Orlando to discuss the status of air permits at Harris Semiconductor's facility in Palm Bay. At that meeting it was agreed that Harris would submit modified air permits. The purpose of the permit modifications was as follows:

1. Consolidate permits on a by building basis to reduced the existing number of permits.

2. To accurately quantify the current air emissions.

Enclosed is the modified permit application for Semiconductor's Building 57.

If you should have any questions about the enclosed information, please feel free to contact me at (407) 724-7467.

Sincerely,

James R. Kolanek

1031

J. R. Kolanek, Manager
Environmental Services

/pgc

cc: A. T. Sawicki
L. R. Hutker
D. R. Erdley
R. R. Sands

DEPARTMENT OF ENVIRONMENTAL REGULATION

#200pd. 3-6-89 Rcpt. 117601

AC 05-161706

WILLIAM TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

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

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

COMPANY NAME: Harris Semiconductor COUNTY: Brevard

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Bldg 57 Plating shop

SOURCE LOCATION: Street Palm Bay Road City Palm Bay

UTM: East 17-538700 North 17-3100900

Latitude 28 ° 01 ' 20 "N Longitude 80 ° 36 ' 10 "W

APPLICANT NAME AND TITLE: J. R. Kolanek; Manager Environmental Services

APPLICANT ADDRESS: P.O. Box 883, Melbourne, Fl 32901

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Harris Semiconductor

I certify that the statements made in this application for a modified 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: James R. Kolanek

J. R. Kolanek, Manager, Envtronmental Svc
Name and Title (Please Type)

Date: 2/27/89 Telephone No. (407) 724-7467

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

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

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

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 Lawrence R Hutker

Lawrence R. Hutker
Name (Please Type)

Harris Semiconductor
Company Name (Please Type)

P.O. Box 883, Melbourne, Florida 32901
Mailing Address (Please Type)

lorida Registration No. 35972 Date: _____ Telephone No. (407) 729-4655

SECTION II: GENERAL PROJECT INFORMATION

. 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.

This is a modification and consolidation of existing air permits.

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

Start of Construction N/A Completion of Construction _____

. 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.)

N/A

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

AC 05-104522 issued 1/14/86; expires 6/30/86.

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52

if power plant, hrs/yr _____; if seasonal, describe: _____

F. 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? No

   a. If yes, has "offset" been applied? _____

   b. If yes, has "Lowest Achievable Emission Rate" been applied? _____

   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 Deterioration" (PSD) requirement 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

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? No

   a. If yes, for what pollutants? _____

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

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		
---SEE ATTACHMENT C ----				

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

1. Total Process Input Rate (lbs/hr): not applicable

2. Product Weight (lbs/hr): not applicable

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
---SEE ATTACHMENT B ----							

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 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).

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
---SEE ATTACHMENT D ---				

E. Fuels

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

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--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.

Waste water from air scrubbers is discharged to on-site Waste Water Treatment Plant--discharge to deepwell under UIC - Permit #UC05-126519.

--------SEE ATTACHMENT D--------

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

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

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

Water Vapor Content: _____ % Velocity: _____ FPS

SECTION IV: INCINERATOR INFORMATION

not applicable

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.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

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

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

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.):

_____

_____

_____

_____

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

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, design pressure drop, 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 8 1/2" 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 8 1/2" 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 8 1/2" 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. The appropriate application fee in accordance with Rule 17-4.05. 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:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

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:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy [2]

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:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

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

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

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:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

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:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1] Explain method of determining efficiency.
[2] Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]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.

Specify bubbler (B) or continuous (C).

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 of 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.

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.

HARRIS SEMICONDUCTOR

AIR PERMIT - BUILDING 57

ATTACHMENT A

PROCESS DESCRIPTION

ATTACHMENT A.

PROCESS DESCRIPTION

The primary manufacturing operations in building 57 are soldering and plating of integrated circuit parts. Exhausted equipment includes wave soldering machines, wet stations, chemical storage cabinets, and vapor phase reflow systems.

The building houses five wet stations; four of which contain acid vats. The fifth is a water rinse station. Three of the four acid stations contain heated vats. No covers are used on the vats.

Scrubber number F57S01 treats caustic and corrosive contaminated exhaust generated from the above mentioned equipment. The scrubber is located on the roof of the building (see attached scrubber location maps.)

HARRIS SEMICONDUCTOR

AIR PERMIT - BUILDING 57

ATTACHMENT B

AIR EMISSIONS

ACID MONITORING--BUILDING 57

Monitoring was performed on the building 57 scrubber F57S01 in December of 1988. Samples were collected using modified EPA method 8 sampling train. The impinger medium consisted of a 0.1 N sodium hydroxide solution. The analytical methodology utilized to determine the ions of highest concentration is as follows:

Chloride ion--EPA Method 325.3
Fluoride ion--EPA Method 340.2
Nitrate, phosphite, and sulfate ions--ion chromatography

All results were in pounds per hour as "X", where "X" represents the acid compound present in highest concentration.

The test results revealed that the total accumulative monitored acid emissions for the building were 0.175 tons/year expressed as hydrochloric, hydrofluoric, nitric, phosphoric and sulfuric acids. This figure is based on a hypothetical production schedule of 8760 hours a year. The monitoring was performed over an 8 hour time interval when the full production was occurring.

When a resulting acid concentration was expressed as a "less than 'y' " value, where 'y' represents the lowest detectable limit possible using the analytical methodology employed, acid emissions were taken to be equal to this 'y' limit value.

RESULTS OF ACID MONITORING--BUILDING 57

PERFORMED ON SCRUBBER OUTLET
IN DECEMBER OF 1988

Scrub #		HCl	HF	Nitric Acid	Phosphoric Acid	Sulfuric Acid	TOTAL (TON/YR)
F57S01	(lb/hr)	0.020	0.001	0.009	0.005	0.005	
	(ton/yr)	0.088	0.004	0.039	0.022	0.022	0.175

TOTAL ACID EMISSIONS = 0.175 TONS/YEAR

SOLVENT MONITORING--BUILDING 57

Solvent monitoring work was performed on the building 57 scrubber system F57S01 during December of 1986, and August of 1987. The tests conducted were EPA Method 25A (flame ionization detection) and EPA Method TO-1 (Tenax adsorption and GC/MS analysis.) The test results are included in this application.

FID test results revealed that total accumulative monitored VOC emissions for the building were 1.66 tons/year expressed as propane. This figure is based on a hypothetical production schedule of 8760 hours a year. The following assumptions were made regarding monitoring work on this building:

-VOC values refer to all organic emissions including organic solvents.

-All data was corrected for 2 ppm background noise that is normally present in the ambient air.

-The F.I.D. accumulative emission figure is based on the maximum concentration of VOC's observed during the monitoring time frame.

EPA METHOD 25-A (F.I.D. ANALYSIS) BUILDING 57
VOC EMISSIONS DURING FULL PRODUCTION

TEST DATE	SCRUBBER #	PRODUCTN SCHEDULE (HRS/YR)	VOC EMISSIONS (TON/YR)
12/16/86	F57S01	8760	1.66

TOTAL PROJECTED VOC EMISSIONS FOR BUILDING 57 = 1.66 TONS/YEAR

GC/MS:

AUGUST 1987 RESULTS-SCRUBBER NUMBER F57S01

ACETONE (LB/HR).....	---
TRICHLOROETHANE (LB/HR).....	---
METHYLENE CHLORIDE (LB/HR).....	---
TETRACHLOROMETHYLENE (LB/HR).....	---
FREON-113 (LB/HR).....	---
CHLOROFORM (LB/HR).....	trace
BENZENE (LB/HR).....	trace
TRICHLOROETHYLENE (LB/HR).....	---
TOLUENE (LB/HR).....	trace
METHYL ISOBUTYL KETONE (LB/HR).....	trace
ETHYL BENZENE (LB/HR).....	trace
XYLENES (LB/HR).....	trace

HARRIS SEMICONDUCTOR

AIR PERMIT - BUILDING 57

ATTACHMENT C

RAW MATERIALS AND CHEMICALS

HARRIS SEMICONDUCTOR
BUILDING 57

PROCESS SOLVENTS

1,1,1 TRICHLOROETHANE
4-METHYL-2,4-PENAHNEDIOL
ACETONE
ALIPHATIC ESTER
ALIPHATIC SOLVENTS
ALKANOLAMINE
ALKYL AMINE
CARBON TETRACHLORIDE
CELLOSOLVE ACETATE
CHLOROFORM
ETHANOL
ETHYL ACETATE
ETHYLENE GLYCOL MONOBUTYL ETHER ACETATE
ETHYLENE GLYCOL MONOETHYL ACETATE
FLUORINERT FC-71
FLUORINERT FC-84
HEXANE
HYDROQUINONE
ISOPROPANOL
METHANOL
METHYLENE CHLORIDE
N-METHYL-2-PYRROLIDONE
ORGANIC SALT
OXTYLPHENOL
PETROLATUM
PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE
TRICHLOROETHYLENE
TRICHLOROETHYLENE
TRICHLOROTRIFLUOROETHANE
TRIETHYLENE GLYCOL MONOMETHYL ETHER
TURPENTINE
XYLENE

HARRIS SEMICONDUCTOR
BUILDING 57

PROCESS CHEMICALS

ACTIVATORS
AMINE SALT
AMINO ACID CHLORIDEE
AMMONIUM CHLORIDE
AMMONIUM HYDROXIDE
ANTIMONY
ANTIOXIDEMT
BENZOIC ACID
BISMUTH
BORIC ACID
CADMIUM MERCURY SULFIDE
CADMIUM SULFOSELENIDE RED
CARAMIDE
CARBOXYLIC ACID-PHENOL
CITRIC ACID
CRESOL
DIMETHYL PHTHALATE
ETHOXYLATED TALL OIL FATTY ACIDS
FATTY ACID GLYCERIDES
FATTY ACIDS
FLUOBORIC ACID
FLUORIDE SALT
FORMIC ACID
GLUTAMATE POLYMER ACTIVATOR
GLUTAMATE POLYMER HYDROCHLORIDE
GLYCERINE
GLYCEROL
GUM RESIN
HYDROCHLORIC ACID
HYDROCHLORIDE
HYDROFLUORIC ACID
HYDROGEN PEROXIDE
INDICATING DYE
INDIUM
INORGANIC CARBONATES
INORGANIC OXIDES
ISOBUTANE PROPELLANT
ISOPHORONE
JANUS GREEN B
LEAD
LEAD CHROMATE
LEAD SALT
LITHIUM SALT
METHYL CHLORIDE
MONOETHANOLAMINE
NEUTRALIZER
NITRIC ACID
ORGANIC ACID

BUILDING 57 PROCESS CHEMICALS (CONT.)

ORGANIC ACID PHOSPHATE
PETROLEUM OIL
PHOSPHORIC ACID
POLYFUNCTIONAL ACID
POTASSIUM 2-CHLORO-4-NITROBENZOATE
POTASSIUM BIFLUORIDE
POTASSIUM CYANIDE
POTASSIUM PENTABORATE
POTASSIUM TETRABORATE
RESIN
ROSIN
SILVER
SODIUM BICARBONATE
SODIUM CARBONATE
SODIUM DODECYL SULFATE
STANNOUS SULFATE
STEARIC ACID
SULFATE
SULFURIC ACID
SURFACTANTS
THIOUREA
TIN
WATER SOLUBLE DISPERANT
ZINC CHLORIDE

HARRIS SEMICONDUCTOR

AIR PERMIT - BUILDING 57

ATTACHMENT D

CONTROL EQUIPMENT

HARRIS SEMICONDUCTOR -- AIR PERMIT INFORMATION

CURRENT PERMIT

BUILDING: 57
PERMIT NUMBER: AC 05-104522
PERMIT TYPE : CONSTRUCTION

DATE ISSUED : 01/15/86
RENEWAL DATE: 04/01/86
DATE EXPIRES: 06/30/86

AREA SERVED:
PROCESS DESCRIPTION: CHEMICAL VAPOR SCRUBBER

PERMIT LIMITS

VOL. RATE (SCFM): 13,500
ACID MIST (LB/HR): 0.0009
SOLVENTS (LB/HR): 0.0005
VOCS (LB/HR): --
OPER. (HRS/YEAR): 2112

SPECIFIC CONDITIONS

ANNUAL OPERATING REPORT :
NOTIFICATION OF VE TEST :
ANNUAL VIS EMISSION TEST:

EQUIPMENT INFORMATION

MANUFACTURER : TRI-MER CORP.
LOCATION : B57 ROOF CENTER OF BLDG
HARRIS ID NUMBER : F57S01
VOLUME FLOW RATE (CFM): 13,500
RECIRCULATION RATE (GPM): 36
MAKEUP WATER RATE (GPM): 2.0

MODEL NUMBER : F/W 5
STACK HEIGHT (FT): 12
STACK DIAMETER (IN): 32
STACK VELOCITY (FPM): 2750
DUCT MATERIAL : polypro

PERMIT HISTORY

PERMIT NUMBER: AC 05-104522
DATE EXPIRED : 06/30/86

SCRUBBER INFORMATION

HARRIS ID # : F57S01
MANUFACTURER : TRI-MER CORP. MODEL NUMBER : F/W 5
SERIAL NUMBER: 7029 MATERIAL : PVC
DESCRIPTION : HORIZONTAL COUNTER-FLOW, MIST ELIMINATOR, POLYPRO FILTER PACK

DESIGN DATA
VOLUME FLOW RATE (CFM): 14,000 PRESSURE DROP (IN):
RECIRCULATION RATE (GPM): 36 MAKE UP RATE (GPM): 2.0

ACTUAL DATA
VOLUME FLOW RATE (CFM): 13,260 PRESSURE DROP (IN): 4.2 DATE: 12/16/86
RECIRCULATION RATE (GPM): 55 MAKE UP RATE (GPM): 11 DATE: 06/05/87

RECIRCULATION PUMP INFORMATION

MANUFACTURER : FLOTEC MODEL NUMBER : C8P8-1194V
SERIAL NUMBER: HP : 1.5 RPM : 3450
BRKR LOCATION: NEXT TO UNIT FED FROM MCC : PP 26

FAN INFORMATION

HARRIS ID # : F57E03
MANUFACTURER : TRI-MER CORP. MODEL NUMBER: 30 FAN UB
SERIAL NUMBER: 5397 MATERIAL : PVC
DESCRIPTION : CENTRIFUGAL BLOWER, BACKWARD INCLINED BLADES

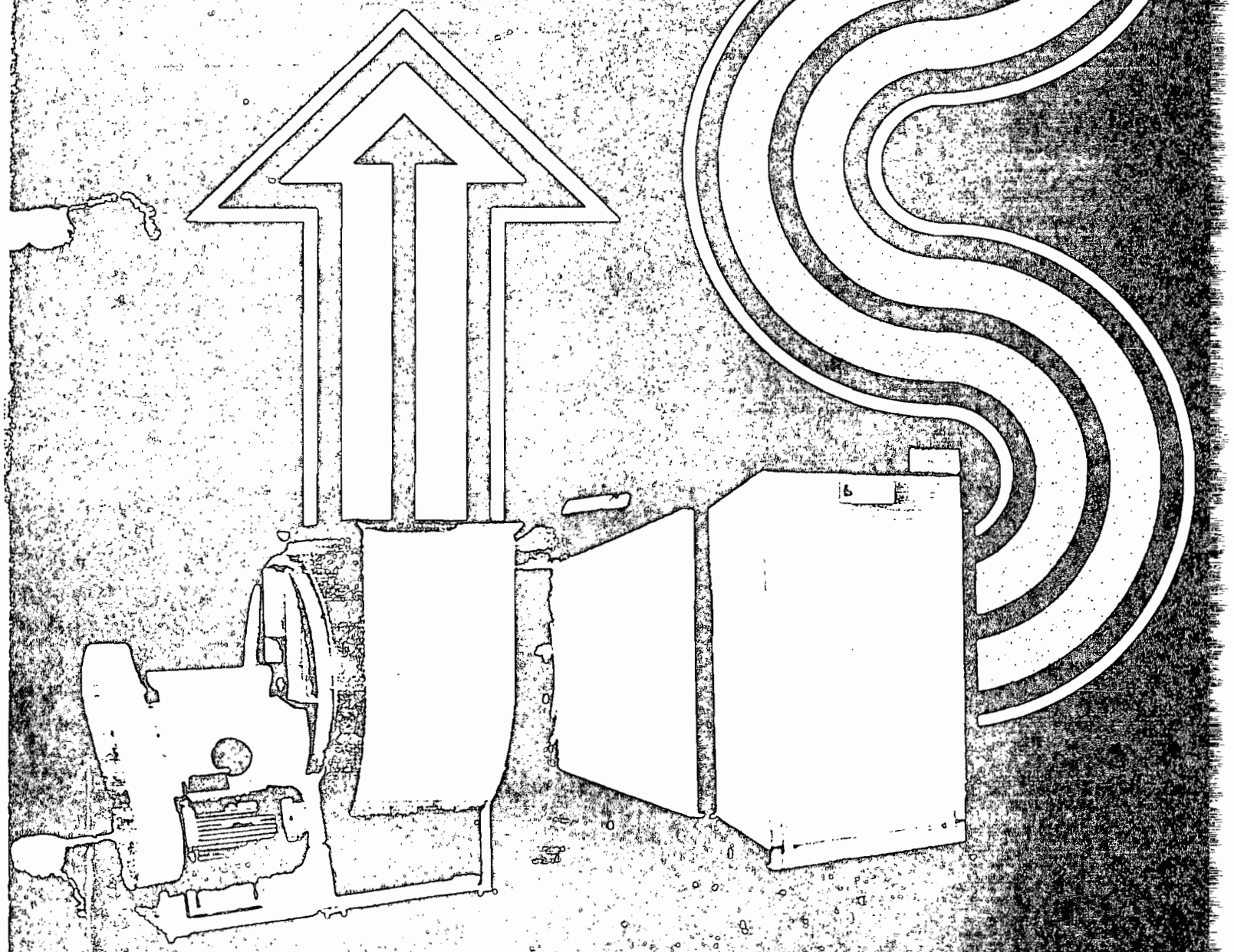
DESIGN DATA
VOLUME FLOW RATE (CFM): 13,500 STATIC PRESS (IN):

ACTUAL DATA SPEED (RPM): DATE:
VOLUME FLOW RATE (CFM): 13,260 STATIC PRESS (IN): DATE: 12/16/86

FAN MOTOR INFORMATION

MANUFACTURER : MODEL NUMBER :
SERIAL NUMBER: HP : 20 RPM : 1750
BRKR LOCATION: NEXT TO UNIT FED FROM MCC : PP 26

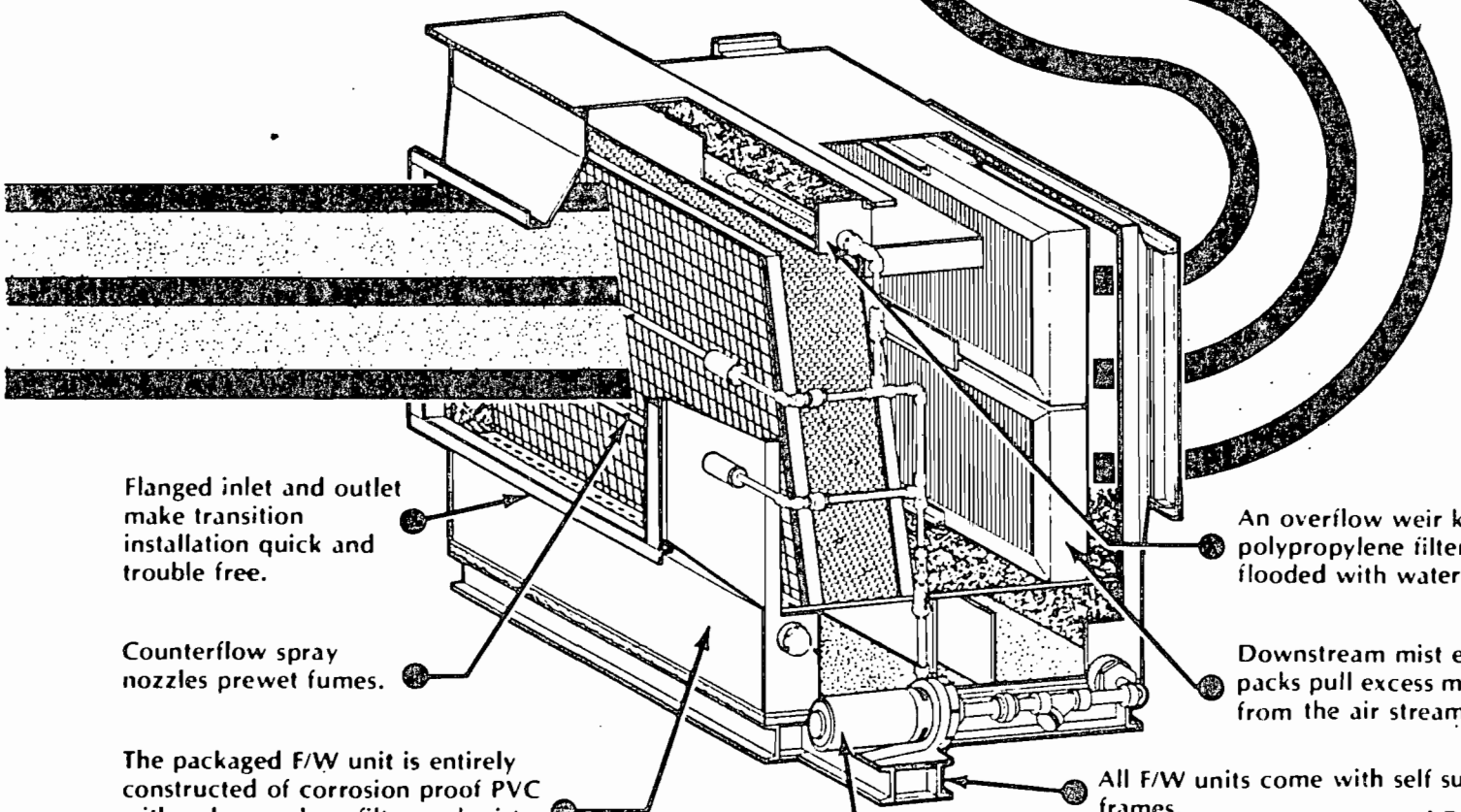
The Tri-Mer Fume Washer



Designers and Manufacturers of Corrosion Control Systems

Design Features of the Tri-Mer Fume Washer

TRI-MER fume washers offer an efficient economically packaged solution to your corrosive fume problems. Couple this unit to a TRI-MER all PVC fan, or use your existing fan, and you're ready for operation. A simple inexpensive installation.



Flanged inlet and outlet make transition installation quick and trouble free.

Counterflow spray nozzles prewet fumes.

The packaged F/W unit is entirely constructed of corrosion proof PVC with polypropylene filter and mist eliminator packs.

An overflow weir keeps th polypropylene filter pack flooded with water.

Downstream mist eliminat packs pull excess moisture from the air stream.

All F/W units come with self supportin frames.

Units through Model F/W-9 are available with integral recirculation tank and pump as shown.

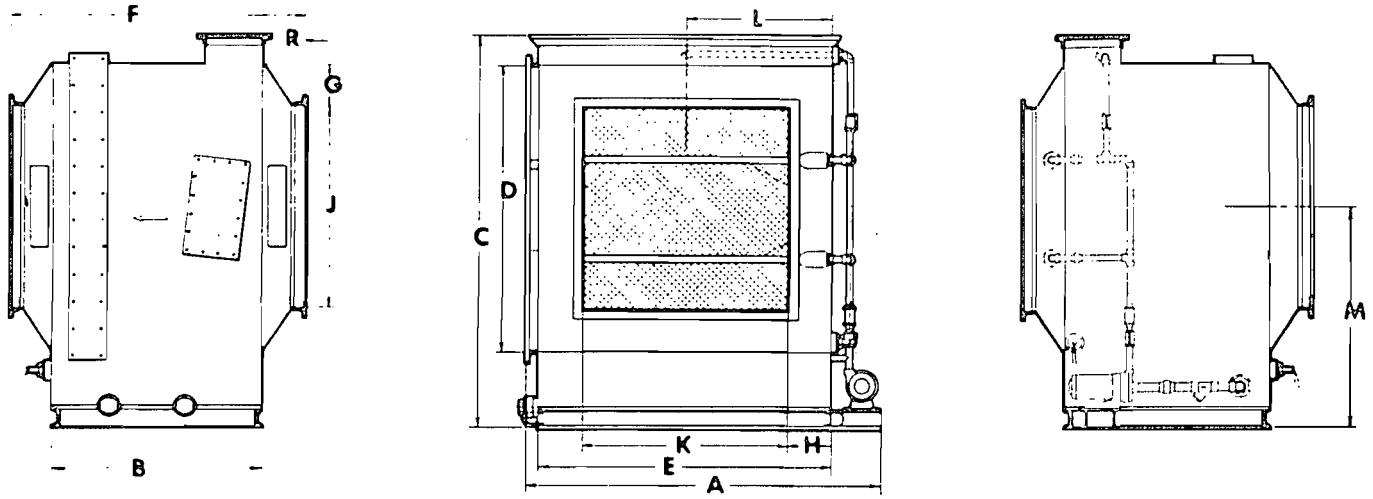
NOTE — Models F/W-10 through F/W-16 require remote recirculation tanks per manufacturers suggestion.

F/W with integral recirculation tank. F/W without integral recirculation tank

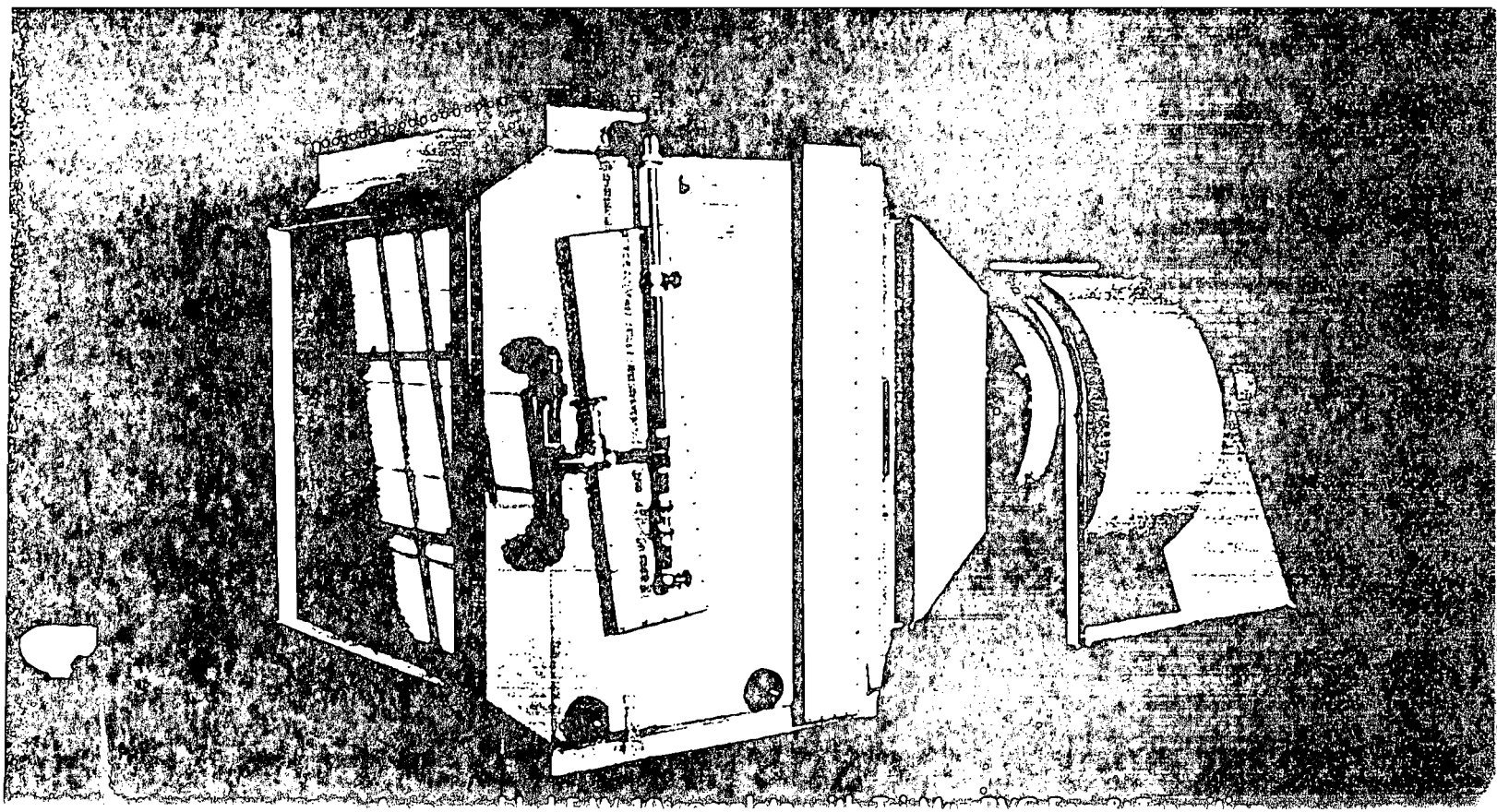
F/W	A	B	C	D	E	F	G	H	J	K	L	M	N	CHANNEL	ANGLE	DRAIN	G.P.M.	No. OF HEADERS	PIPE	CFM CAPACITY
1	3'-11½"	4'-4½"	3'-6"	4'-3"	5'-3"	3'-4"	3'-4"	4'-10"	6"	6"	28"	28"	1'-8"	2'-0¾"	3'-0¾"	8"	4"@5.4#	1½"x1½"x3/16"	3"	8	2	¾"	3,000 to 5,500
2	4'-3½"	4'-8½"	3'-10"	4'-6¾"	5'-6¾"	3'-8"	3'-4"	5'-2"	4½"	4½"	35"	35"	1'-10"	2'-2¾"	3'-2¾"	8"	4"@5.4#	1½"x1½"x3/16"	3"	9	2	¾"	5,500 to 7,000
3	5'-0½"	5'-5½"	3'-6"	5'-3¾"	6'-3¾"	4'-5"	4'-5"	4'-10"	8"	8"	37"	37"	2'-4½"	2'-7¾"	3'-7¾"	8"	4"@5.4#	1½"x1½"x3/16"	3"	12	2	¾"	7,000 to 9,500
4	5'-6"	5'-11"	4'-0"	5'-8¾"	6'-8¾"	4'-10"	4'-10"	5'-6"	6½"	6½"	45"	45"	2'-5"	2'-9¾"	3'-9¾"	9"	4"@5.4#	2"x2"x¼"	3"	14	2	¾"	9,500 to 11,500
5	6'-0"	6'-5½"	3'-8½"	6'-2⅝"	7'-2⅝"	5'-4"	5'-4"	6'-2⅝"	8½"	8½"	45"	45"	2'-8½"	3'-0⅜"	4'-0⅜"	9"	4"@5.4#	2"x2"x¼"	3"	16	2	¾"	11,500 to 14,000
6	6'-8"	7'-1"	4'-1½"	6'-10¾"	7'-10¾"	6'-0"	6'-0"	6'-1½"	11"	11"	50"	50"	3'-0"	3'-4¾"	4'-4¾"	1'-0"	4"@5.4#	2"x2"x¼"	3"	19	2	¾"	14,000 to 17,000
7	6'-11"	7'-5"	3'-10¾"	7'-3"	8'-3"	6'-4"	6'-4"	5'-10¾"	11"	11"	54"	54"	3'-2"	3'-6¾"	4'-6¾"	1'-0"	4"@5.4#	2"x2"x¼"	3"	22	2	¾"	17,000 to 20,000
8	7'-8"	8'-1"	4'-3"	7'-10¾"	8'-10¾"	7'-0"	7'-0"	6'-3"	1'-0½"	1'-0½"	59"	59"	3'-6"	3'-9¾"	3'-9¾"	1'-0"	4"@5.4#	2"x2"x¼"	3"	28	2	¾"	20,000 to 24,000
9	8'-5"	9'-0"	4'-0¾"	8'-8"	9'-8"	7'-9"	7'-9"	6'-0¾"	1'-1½"	1'-1½"	66"	66"	3'-10½"	4'-2¾"	5'-2¾"	1'-0"	4"@5.4#	2"x2"x¼"	3"	34	3	¾"	24,000 to 30,000
10	9'-7"		4'-5"	9'-1¾"		8'-11"	8'-11"	6'-5"	1'-3½"	1'-3½"	76"	76"	4'-5½"	5'-0¾"		1'-0"	6"@8.2#	2"x2"x¼"	3"	44	3	1"	30,000 to 40,000
11	12'-1"		4'-2½"	9'-9¾"		8'-9"	11'-5"	6'-2½"	10"	2'-2"	85"	85"	5'-8"	4'-11¼"		1'-0"	6"@8.2#	2"x2"x¼"	3"	56	3	1"	40,000 to 50,000
12	14'-5"		4'-5½"	9'-9¾"		8'-9"	13'-9"	8'-5½"	10"	2'-7½"	85"	102"	6'-10½"	4'-11¼"		2'-0"	6"@8.2#	2"x2"x¼"	3"	66	3	1"	50,000 to 60,000
14	17'-9"		4'-5½"	9'-9¾"		8'-9"	17'-1"	8'-5½"	10"	3'-2½"	85"	126"	8'-5½"	4'-11¼"		2'-0"	6"@8.2#	2"x2"x¼"	3"	81	3	1"	60,000 to 75,000
15	20'-8"		4'-2½"	9'-9¾"		8'-9"	19'-10"	8'-2½"	10"	3'-9½"	85"	147"	9'-11"	4'-11¼"		2'-0"	6"@8.2#	2"x2"x¼"	3"	93	3	1½"	75,000 to 87,000
16	20'-8"		4'-3"	9'-0¾"		10'-0"	20'-0"	8'-7"	1'-5½"	3'-0"	85"	240"	10'-0"	5'-6¾"		2'-0"	6"@8.2#	2"x2"x¼"	3"	106	3	1½"	87,000 to 100,000

* NOTE — For exact unit weight check with manufacturers.

* NOTE — Double pack models are available where particularly heavy loadings exist. Check with manufacturer for dimensional changes.



Typical three view drawing of units with integral recirculation tanks.

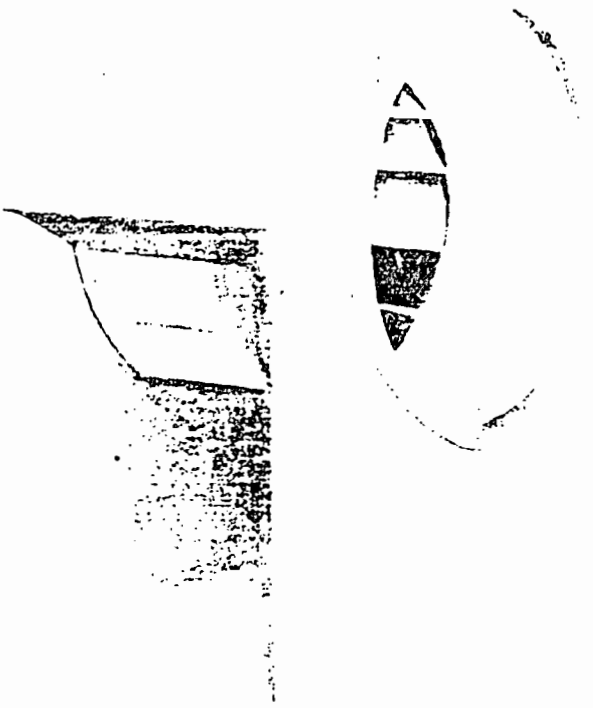


PVC

UNPLASTICIZED POLYVINYL CHLORIDE

NON-OVERLOADING BLOWERS

(BACKWARD INCLINED BLADES)



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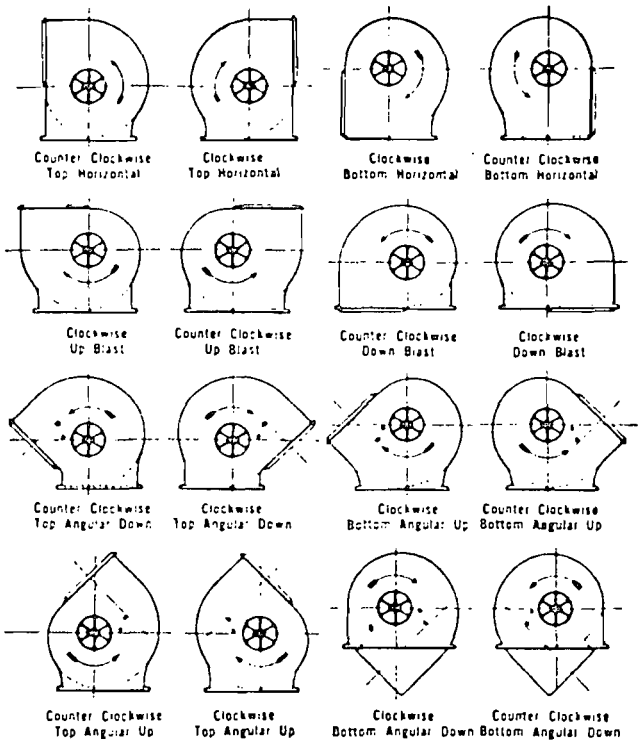
Air Pollution Control Systems

DESIGN • ENGINEERING • MANUFACTURING

1400 Monroe Street • Owosso, Michigan 48867 • 517-723/5124 • Telex 228545

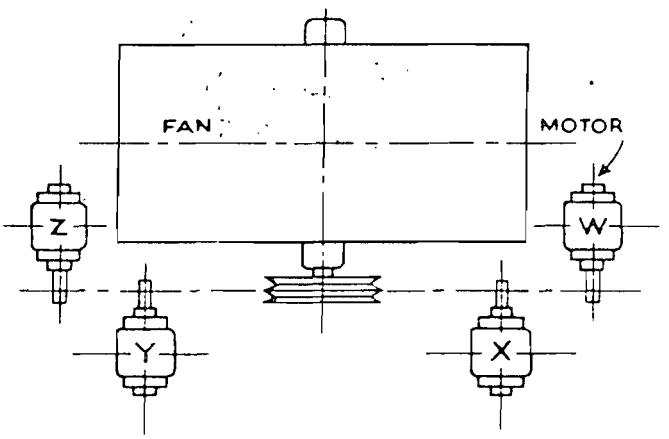
STANDARD NOMENCLATURE

Direction of Rotation and Discharge



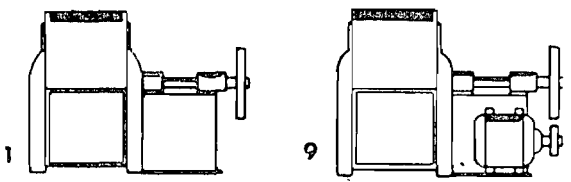
Direction of rotation is determined from the drive side. On single inlet fans, drive side is considered as opposite inlet, regardless of actual drive location.

STANDARD MOTOR POSITIONS



The location of motor is determined from plan view of the blower, designating the motor position by letters W, X, Y and Z as the case may be.

ARRANGEMENTS OF DRIVE



ARRANGEMENT No. 1, SWSI

For belt drive or direct connection. Wheel overhung. Two bearings on base. Furnished in sizes 122 to 600 inclusive. Single inlet only

ARRANGEMENT No. 9, SWSI

For belt drive. Arrangement No. 1 designed for mounting prime mover on side of base. Furnished in sizes 122 to 600 inclusive. Single inlet only.

SWSI – Class II

Heavier design than Class I. A one piece intermediate stiffening ring is also welded into each blade. Tip speed limit approximately 13000 FPM and 6 inches total pressure.

CONSTRUCTION FEATURES

- HOUSING—All P.V.C.
- WHEEL—P.V.C. and Coated Steel
- INLET—1½" P.V.C. Angle Flange
- OUTLET—1½" P.V.C. Angle Flange
- DRAIN—2" P.V.C. Flanged
- CLEANOUT DOOR—P.V.C. Bolted
- STEEL FRAME—Epoxy Coated

Blowers are very rugged with heavy angle iron bracing, over capacity shaft and bearings. Formed P.V.C. venturi inlets give streamlined flow into the wheel with its own matching cone for very high efficiency and quiet operation. OPERATING TEMPERATURES UP TO 155°F.

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CAPACITY TABLES

TRI-MER CORPORATION

SIZE 30

Wheel Diameter = 30"
Wheel Circumference = 7.85'

Inlet Diameter = 33⅛"
Fan Outlet Area = 5.17 sq. ft.

Safe RPM = 1530
Maximum BHP = 5.25 $\left(\frac{RPM}{1000}\right)^3$

13,500 CFM

CFM	OV	¼" SP		⅜" SP		½" SP		⅝" SP		¾" SP		1" SP		2" SP		3" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	457	[illegible]	456	.64	[illegible]	.75	[illegible]	.69										
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.75	[illegible]	.87	[illegible]	1.13	[illegible]	[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.74	552	.87	577	1.01	[illegible]	1.29	[illegible]	2.52								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.75	[illegible]	4.27						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.16	[illegible]	1.32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.33	[illegible]	1.49	[illegible]	1.84	[illegible]	3.27	837	[illegible]	1113	[illegible]				
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[illegible]	[illegible]	[illegible]	1.14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.91	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.25	[illegible]	5.06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1202	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	842	[illegible]	[illegible]	2.93	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	916	[illegible]	[illegible]	[illegible]	[illegible]	3.91	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1212	[illegible]	1304	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	991	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1272	[illegible]	[illegible]	13.1	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	1144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]	1297	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	2400	1366	10.4	1375	10.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]								

BHP shown does not include belt drive loss.

TRI-MER CORPORATION

SIZE 33

Wheel Diameter = 33"
Wheel Circumference = 8.63'

Inlet Diameter = 36⅝"
Fan Outlet Area = 6.26 sq. ft.

Safe RPM = 1390
Maximum BHP = 8.34 $\left(\frac{RPM}{1000}\right)^3$

CFM	OV	¼" SP		⅜" SP		½" SP		⅝" SP		¾" SP		1" SP		2" SP		3" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
[illegible]	[illegible]	348	.35	[illegible]	.47	410	.59	[illegible]	.72	465	[illegible]	[illegible]	1.12										
[illegible]	900	375	.43	395	.56	434	.71	460	.84	485	.98	534	1.27										
[illegible]	1000	403	.52	432	.67	459	.82	483	.97	507	1.12	553	1.44	727	[illegible]								
[illegible]	1100	432	[illegible]	459	.79	484	.96	509	1.12	531	1.29	574	[illegible]	723	[illegible]								
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[illegible]	1300	492	[illegible]	515	1.09	[illegible]	1.28	560	[illegible]	531	1.66	621	2.06	760	[illegible]	886	5.51	1005	[illegible]				
[illegible]	1400	522	[illegible]	544	1.27	566	1.45	587	1.67	607	1.88	645	[illegible]	773	[illegible]	899	5.91	1012	[illegible]				
[illegible]	1500	554	1.27	574	1.47	594	1.68	614	1.89	634	2.11	671	[illegible]	800	[illegible]	914	[illegible]	1023	[illegible]	1125	[illegible]		
[illegible]	1600	585	1.33	604	1.69	621	1.91	643	2.14	661	2.37	697	2.85	821	[illegible]	932	6.31	1036	9.01	1135	11.4	1231	[illegible]
[illegible]	[illegible]	650	2.01	667	2.22	[illegible]	[illegible]	700	2.71	717	[illegible]	750	[illegible]	[illegible]	[illegible]	971	[illegible]	1069	10.2	[illegible]	[illegible]	1248	15.3
[illegible]	[illegible]	715	2.54	730	2.37	743	3.12	761	3.39	776	3.67	806	[illegible]	[illegible]	[illegible]	1015	[illegible]	1105	11.5	[illegible]	[illegible]	1275	16.9
[illegible]	2200	783	3.42	795	3.56	808	3.92	822	[illegible]	836	[illegible]	[illegible]	[illegible]	969	[illegible]	[illegible]	[illegible]	1147	13.1	1228	15.8	1306	18.6
[illegible]	2400	848	4.32	860	4.61	873	[illegible]	[illegible]	[illegible]	898	[illegible]	[illegible]	[illegible]	[illegible]	8.88	1112	11.3	[illegible]	14.5	[illegible]	[illegible]	1345	20.7
[illegible]	[illegible]	916	5.13	927	5.71	937	[illegible]	[illegible]	[illegible]	960	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1240	16.4	[illegible]	[illegible]	[illegible]	22.8
17529	2800	983	6.56	993	6.96	1003	7.27	[illegible]	7.61	1024	7.93	[illegible]	[illegible]	1133	[illegible]	[illegible]	[illegible]	1291	[illegible]	1362	21.8		
[illegible]	3000	1050	8.11	1060	8.42	1069	8.75	[illegible]	9.09	1088	9.44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1342	20.5				
[illegible]	3200	1119	9.77	1127	10.1	1136	10.4	[illegible]	[illegible]	1153	11.1	1172	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	3400	1186	11.5	1195	12.1	1203	12.3	1212	12.7	1219	13.1	[illegible]	[illegible]	[illegible]	17.3	[illegible]	[illegible]						

BHP shown does not include belt drive loss.

TRI-MER CORPORATION

SIZE 36

Wheel Diameter = 36½"
Wheel Circumference = 9.55'

Inlet Diameter = 40⅞"
Fan Outlet Area = 7.66 sq. ft.

Safe RPM = 1255
Maximum BHP = 15.3 $\left(\frac{RPM}{1000}\right)^3$

CFM	OV	¼" SP		⅜" SP		½" SP		⅝" SP		¾" SP		1" SP		2" SP		3" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
[illegible]	800	300	.41	330	.55	356	.69	382	.83	407	.99	455	1.33										
[illegible]	900	324	.51	351	.66	376	.81	[illegible]	.97	422	1.14	466	1.39	629	[illegible]								
[illegible]	1000	348	.61	374	.79	397	.95	419	1.13	440	1.31	481	1.67	633	3.41								
8426	1100	373	.73	397	.93	419	1.11	440	1.31	460	1.49	498	1.88	640	3.67	770	5.85						
9192	1200	398	.88	422	1.09	442	1.29	462	1.51	481	1.71	517	2.12	650	3.97	774	6.18						
9958	1300	424	1.04	446	1.28	466	1.49	485	1.71	503	1.94	537	2.38	663	4.31	780	6.55	890	9.13				
10724	1400	451	1.23	472	1.48	491	1.72	508	1.96	576	2.19	559	2.67	679	4.69	739	6.98	894	9.57				
11490	1500	478	1.45	497	1.71	515	1.96	533	2.22	549	2.47	580	2.98	695	5.09	801	7.45	901	10.1	997	13.1		
12256	1600	505	1.69	524	1.97	541	2.24	557	2.51	572	2.77	603	3.32	713	5.53	814	7.97	910	10.7	1001	13.5	1091	16.3
13788	1800	560	2.25	577	2.57	593	2.87	607	3.16	621	3.46	[illegible]	4.08	753	6.54	846	9.14	933	11.9	1018	14.9	1101	18.3
15320	2000	616	2.94	632	3.31	646	3.53	659	3.96	672	4.29	[illegible]	4.97	794	7.65	882	10.5	963	13.4	1041	16.5	1118	19.9
16852	2200	673	3.78	688	4.19	700	4.54	712	4.89	724	5.25	[illegible]	5.97	838	8.94	921	12.1	997	15.1	1071	18.4	1112	21.3
18384	2400	730	4.78	744	5.21	755	5.61	767	5.99	778	6.38	800	7.18	[illegible]	10.4	963	13.7	1035	17.1	1104	20.4	1171	24.1
19916	2600	788	5.94	800	6.42	811	6.85	822	7.26	832	7.67	853	8.52	932	12.1	1006	15.5	1075	19.1	1140	22.7	1205	26.5
21448	2800	845	7.28	857	7.83	867	8.25	876	8.68	886	9.13	906	10.1	931	13.8	1051	17.5	1117	21.3	1180	25.2	1240	29.2
22980	3000	903	8.81	915	9.41	924	9.88	933	10.4	942	10.8	960	11.8	1031	15.8	1098	19.9	1161	23.8	1222	28.1		
24512	3200	961	10.6	973	11.3	981	11.8	989	12.2	998	12.7	1015	13.7	1081	17.9	1145	22.2	1205	26.5				
26044	3400	1019	12.5	1031	13.3	1038	13.8	1046	14.3	1054	14.9	1070	15.9	1133	20.4	1193	24.8	1252	29.4				

BHP shown does not include belt drive loss.

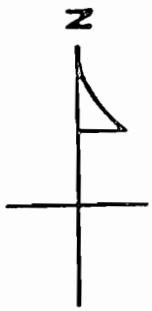
HARRIS SEMICONDUCTOR

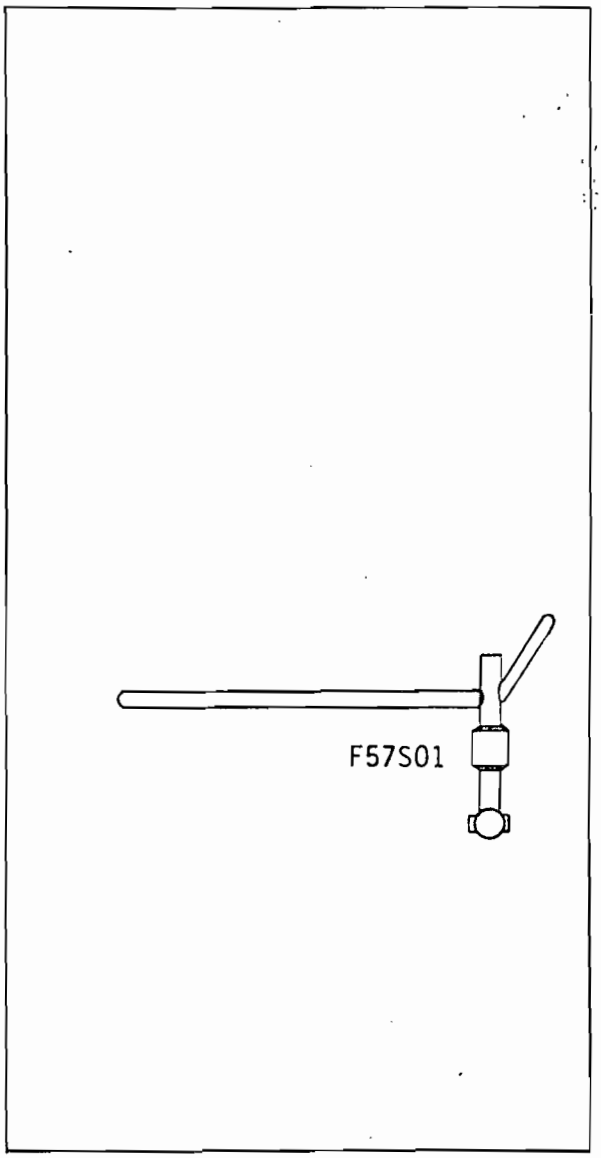
AIR PERMIT - BUILDING 57

ATTACHMENT E

SITE LOCATION MAPS

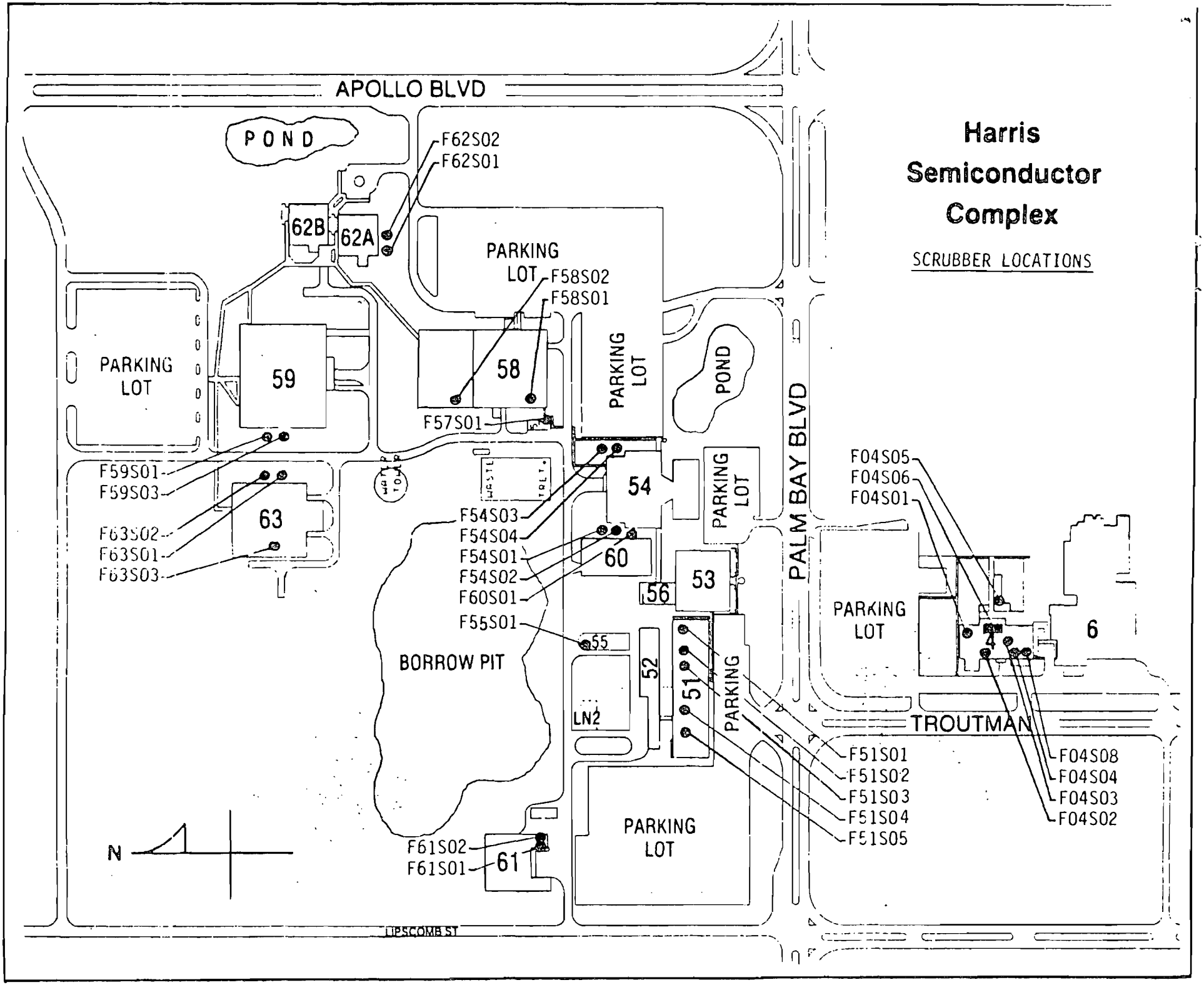
HARRIS SEMICONDUCTOR
SCRUBBER LOCATIONS
BUILDING 57





LEGEND

- Horizontal Scrubber
- Vertical Scrubber
- Exhaust Stack
- Exhaust Fan
- Stack mounted on fan
- Epitaxial Scrubber


Harris
Semiconductor
Complex
SCRUBBER LOCATIONS
APOLLO BLVD
POND
F62S02
F62S01
62B
62A
PARKING
LOT
F58S02
F58S01
PARKING
LOT
59
58
PARKING
LOT
POND
PALM BAY BLVD
F57S01
F59S01
F59S03
63
F63S02
F63S01
F63S03
54
F54S03
F54S04
F54S01
F54S02
F60S01
60
53
56
F55S01
55
BORROW PIT
52
51
LN2
PARKING
PARKING
LOT
F04S05
F04S06
F04S01
PARKING
LOT
4
6
TROUTMAN
F51S01
F51S02
F51S03
F51S04
F51S05
F04S08
F04S04
F04S03
F04S02
N
F61S02
F61S01
61
PARKING
LOT
DIPSCOMB ST