Bruce

Florida Department of Environmental Regulation

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

Lawton Chiles, Governor

Carol M. Browner, Secretary

September 13, 1991

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Alvin N. Critzer, Plant Manager
Harris Semiconductor
Post Office Box 883
Melbourne, Florida 32901

30 ORL 050014__

Dear Mr. Critzer:

Re: Amendments to Construction Permits Nos. AC 05-189176 (Bldg. 58), AC 05-189177 (Bldg. 60), AC 05-189178 (Bldg. 57), AC 05-190042 (Bldg. 63), AC 05-190797 (Bldg. 62), AC 05-190798 (Bldg. 51), AC 05-190799 (Bldg. 55) AC 05-190800 (Bldg. 54), and AC 05-180707 (Bldg. 59)

The Department has reviewed Mr. Constantine Triantafyllidis' letter received May 2, 1991, requesting approval to install two automatic chlorine distribution systems to feed the wet scrubber systems serving the above referenced sources/buildings. One distribution system will serve sources/Buildings 51, 54, 55, 57, 58 and 60, and one will serve sources/Buildings 59, 62 and 63. Also, it was stated that the facility will occasionally be using the biodispersant Chemtreat CT-907 to loosen up biological matter in the core of the scrubber media and will be discharged with the effluent from the scrubbers to the on-site industrial waste water treatment plant. The Department finds the request to be acceptable and the following will be added:

Attachment to be Incorporated:

o Mr. Constantine Triantafyllidis' letter with attachments received May 2, 1991.

This letter must be attached to your construction permits, Nos. AC 05-189176, -189177, -189178, -190042, -190797, -190798, -190799, -190800 and -180707, and shall become a part of the permits.

Sincerely,

STEVE SMALLWOOD, P.E.
Director
Division of Air Resources
Management

SS/BM/rbm

Attachments

c: C. Collins, Central Dist.
C. Triantafyllidis, HS

Attachment

PM
4-29-91
Melbourne, FL

HARRIS

April 23, 1991

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

Re: Chlorine Feed on the Wet Scrubber Systems;
Permit Numbers: AC 05-189176, AC 05-189177, AC 05-189178, AC 05-190042, AC 05-190797, AC 05-190798, AC 05-190799, AC 05-190800, AC 05-150794
HARRIS SEMICONDUCTOR

Dear Mr. Fancy:

By this letter, Harris Semiconductor is providing the Department with notice of its intent to provide automatic chlorine distribution to the wet scrubber systems of the Buildings at this facility, under the above mentioned permit numbers.

The proposed automatic chlorine distribution system was designed by our facilities staff to maintain the scrubber media, housing and spray nozzles clean from algal and bacterial growth which can impede the water solubility of the chemicals in the recirculation water. Furthermore, the system will minimize the extensive maintenance involved during non-production hours in the cleanup of bacteria and algae in the scrubbers.

The system will consist of two distribution stations. One station will feed Buildings 51, 54, 55, 57, 58 and 60. A drawing of the chlorine distribution system is provided with this submittal. The other system will feed Buildings 59, 62 and 63. The chemical used is Sodium Hypochlorite 10-12% (MSDS attached in this submittal) which will be mixed with reverse osmosis (RO) reject water from the on-site industrial water plants along with city water as a backup. The chlorine-water mixture will subsequently be fed to the scrubbers at a rate of 30 gallons per day for the first station and 12 gallons per day for the second station. The flow rate is determined by the distance, locations (roof or ground) and number of the various scrubbers connected to the system.

In addition, occasional treatment with the biodispersant Chemtreat CT-907 (MSDS attached in this submittal) will be added to the scrubbers to loosen up the biological matter in the core of the scrubber media. The resultant dead organic matter and water soluble chlorine will be discharged with the effluent scrubber water to the industrial waste water treatment plant of the facility.

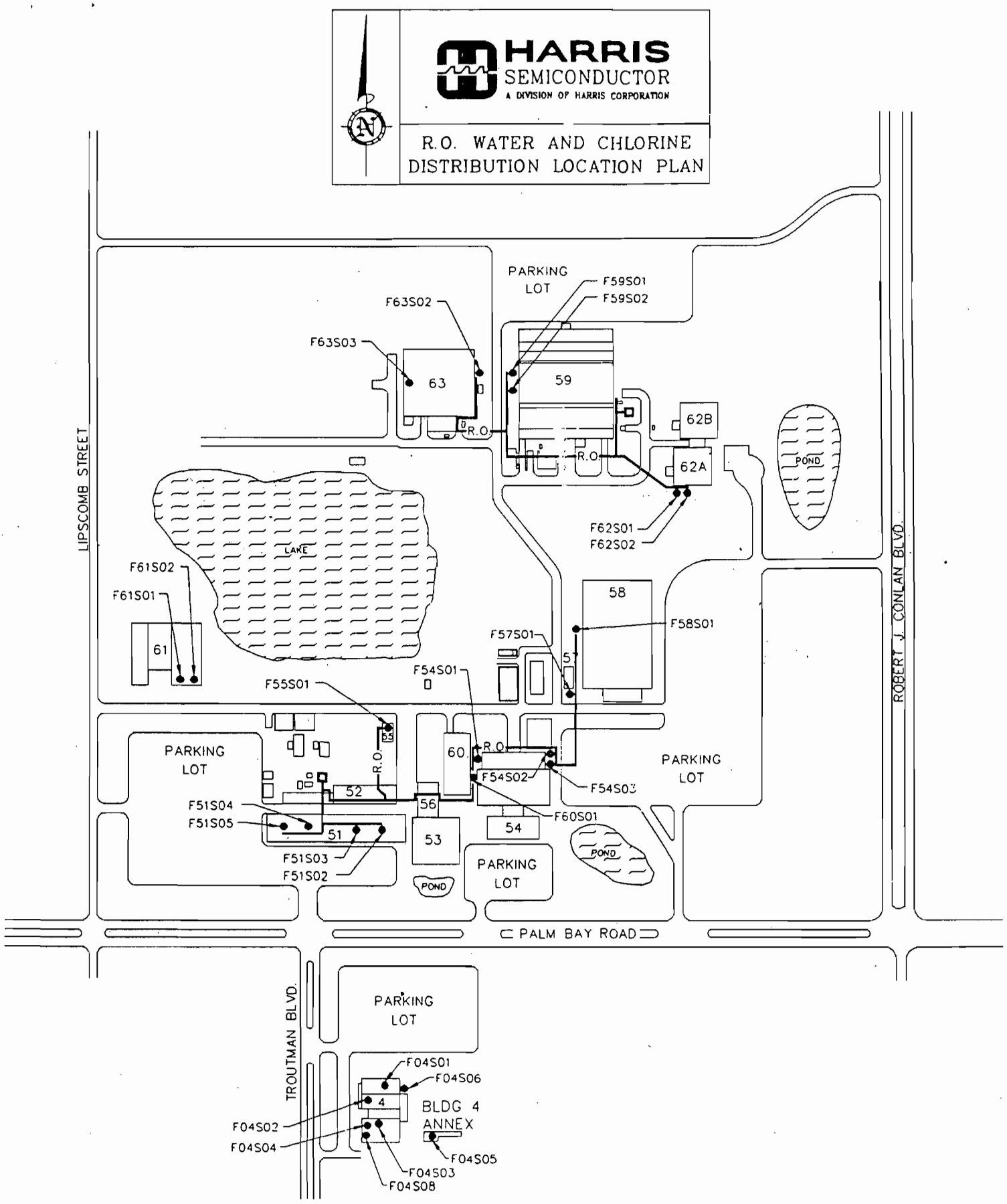
If the Department has no objection, we will proceed with the course of action described above with completion by the end of July. If you have any questions or require any additional information, please contact me at (407) 729-5301.

Sincerely,

Constantine Triantafyllidis

Constantine Triantafyllidis, R.E.P.
Environmental Engineer

cc: B. Mitchell, Tallahassee DER
C. Collins, Orlando DER
J. Armstrong, Orlando DER
K. Smith
J. Steiner


HARRIS
SEMICONDUCTOR
A DIVISION OF HARRIS CORPORATION
R.O. WATER AND CHLORINE
DISTRIBUTION LOCATION PLAN
LIPSCOMB STREET
ROBERT J. CONLAN BLVD.
PARKING LOT
F59S01
F59S02
F63S02
F63S03
63
59
62B
62A
R.O.
POND
LAKE
F62S01
F62S02
F61S02
F61S01
61
58
F58S01
F57S01
57
F54S01
F55S01
60
F54S02
F54S03
52
56
F51S04
F51S05
51
53
54
F60S01
F51S03
F51S02
POND
PALM BAY ROAD
TROUTMAN BLVD.
F04S01
F04S06
4
BLDG 4
ANNEX
F04S02
F04S04
F04S05
F04S03
F04S08

MATERIAL SAFETY DATA SHEET

Sno-Clo Bleach

SECTION I

MANUFACTURER: P. B. & S. CHEMICAL COMPANY, INC. EMERGENCY PH # (502) 827-3545

ADDRESS: P. O. Box 20, Highway 136 W/Geneva Road, Henderson, KY 42420

CHEMICAL NAME/SYNONYMS: Hypochlorite Solution

CHEMICAL FAMILY: Hypochlorite FORMULA: NaOCl

SECTION II - HAZARDOUS INGREDIENTS

CAS REGISTRY NO.	CHEMICAL NAMES (S)	THRESHOLD LIMIT VALUES (UNITS) OSHA PEL	ACGIH TLV	
7681-52-9	Sodium Hypochlorite	N.E.	N.E.	N.E.
1310-73-2	Sodium Hydroxide	Ceiling 2 mg/m^3	Ceiling 2 mg/m^3	
	N.E. = None Established			
This product does not contain any chemical(s) subject to reporting requirements of Section 313, Title III of SARA, Part 372.				

SECTION III - PHYSICAL DATA

BOILING PT: for 15% NaOCl _____°f 110 °c

VAPOR PRESSURE: Vapor Pressure of water _____°f _____°c _____mmHg _____psi

SPECIFIC GRAVITY (H_2O=1): 1.12

%VOLATILE BY VOLUME: water vapor + products of decomposition

EVAPORATIN RATE (=1): N/A

VAPOR DENSITY (AIR=1): N/A

SOLUBILITY IN WATER: Complete

IS MATERIAL: XX LIQUID _____ SOLID _____ GAS _____ PASTE _____ POWDER

APPEARANCE AND ODOR: Light yellow green with pungent like chlorine odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: _____°f _____°c METHOD USED Non-Flammable

FLAMMABLE LIMITS: NONE ESTABLISHED Lower_____ Upper_____

EXTINGUISHING MEDIA: Use spray, fog, foam, dry chemicals or carbon dioxide or suitable agent for surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES: Avoid fumes. Dilute spill with copious amounts of water. Ventilate. Be prepared to use repirator. Bleach decomposes when heated, decomposition products may cause containers to rupture or explode.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Possible vigorous reaction upon contamination with organics or oxidizing agents.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE - (MATERIALS TO AVOID) INHALATION: Irritating to mucous membrane. CONTACT: Severe eye irritation. Skin irritant, reddening and possible skin damage. INGESTION: Causes irritation of membranes of mouth, throat, and stomach pain and possible ulceration.

PRIMARY ROUTES OF ENTRY: ☒ INHALATON ☒ SKIN CONTACT ☐ OTHER (specify)

CHEMICAL LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN	NATIONAL TOXICOLOGY PROGRAM	IARC MONOGRAPHS	OSHA
	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO

EMERGENCY AND FIRST AID PROCEDURES: INHALATION: Remove victim to fresh air. Give artificial respiration if not breathing. Get medical attention. CONTACT: Wash eyes with plenty of water for at least 15 minutes. Consult eye specialist. INGESTION: GET MEDICAL ATTENTION IMMEDIATELY

Sno-Clo Bleach

SECTION VI - REACTIVITY DATE

STABILITY	CONDITIONS TO AVOID
STABLE ☐ UNSTABLE ☒	Heat, light exposure, decrease in pH, and contamination with heavy metals, such as nickel, cobalt, copper, and iron.

INCOMPATABILITY (MATERIALS TO AVOID) Heavy metals, reducing agents, organics, ether, ammonia, acids.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrochlorous acid, chlorine, hydrochloric acid, sodium chloride, sodium chlorate, and oxygen.

HAZARDOUS POLYMERIZATION	MAY OCCUR ☐ WILL NOT OCCUR ☒	CONDITIONS TO AVOID: NONE.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Personnel with proper protective equipment should contain spill. Flush area with large amounts of water. Use reducing agents such as bisulfites or ferrous salt solution to neutralize.

WASTE DISPOSAL METHOD: Disposal is to be in accordance with all Federal, State, and Local regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: When fumes present, use NIOSH approved respirator with acid type canister.

VENTILATION				
	LOCAL EXHAUST	Preferrable.	SPECIAL	----
	MECHANICAL (GENERAL)	As required to control fumes.	OTHER	----

PROTECTIVE GLOVES: Rubber or plastic.

EYE PROTECTION: Chemical goggles.

OTHER PROTECTIVE EQUIPMENT: Clothing to protect skin, safety shower, eye wash fountain.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING & STORING: Store in a cool, dry area, away from direct sunlight and not adjacent to chemicals which may react with bleach if spillage occurs.

OTHER PRECAUTIONS: Use with adequate ventilation. Wash thoroughly after handling.

PREPARED BY: M. S. Miller

APPROVED BY:

Revision DATE: 9/27/90

ChemTreat, Inc.
HOME OFFICE: 500 LICKINGHOLE ROAD
ASHLAND, VA. 23005-3294 • (804) 798-3231

PRODUCT SAFETY DATA SHEET

SECTION I

TRADE NAME
CHEMTREAT CT-907

CHEMICAL NAME AND SYNONYMS

Blend of Nonionic and Anionic Surfactants

EMERGENCY TELEPHONE NO.
(804) 257-7792

SECTION II HAZARDOUS INGREDIENTS

PRINCIPAL HAZARDOUS COMPONENT(S)	CAS NO.	%	ORAL LD_{50}	DERMAL LD_{50}	TLV (Units)
Octylphenoxypolyethoxyethanol	9036-19-5	>1	2700 mg/kg (Rats)	NIF	NIF

SECTION III PHYSICAL DATA

BOILING POINT (°F)	≥212	SPECIFIC GRAVITY (H_2O = 1) at 20°C	~1.01
VAPOR PRESSURE (mm Hg.) at 20°C	<17.5	PERCENT VOLATILE BY VOLUME (%)	92
VAPOR DENSITY (AIR=1)	NAP	EVAPORATION RATE (H_2O = 1)	<1
SOLUBILITY IN WATER	Complete	pH at 20°C	7.5
APPEARANCE AND ODOR	Light, straw color liquid. Mild odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method Used)	None	FLAMMABLE LIMITS % by Vol.	Lel None	Uel None
EXTINGUISHING MEDIA	Water, CO_2, Dry Chemical, Foam			
SPECIAL FIRE FIGHTING PROCEDURES	Firefighters should wear full protective clothing including a NIOSH approved self-contained breathing apparatus.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	Although product will not burn, high temperatures can result in decomposition and the release of toxic vapors.			

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	OSHA TLV	ACGIH TLV
	NA	NA

EFFECTS OF OVEREXPOSURE

Causes irritation of the eyes, skin, and respiratory tract. May be harmful if swallowed.

HEALTH EFFECTS

No applicable information was found on the long term health effects of this product. Persons with pre-existing skin conditions may be more susceptible to the effects of this product. This product does not contain any components listed as a carcinogen by IARC, NTP, OSHA or ACGIH.

PRIMARY ROUTE OF ENTRY

Eyes
Skin
Ingestion

EMERGENCY FIRST AID PROCEDURE

EYES & SKIN: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. Flush skin with water. Wash clothing before reuse. INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth to mouth. If breathing is difficult, give oxygen. Call a physician. INGESTION: If swallowed, do not induce vomiting. Give large quantities of water. Call a physician immediately. Never give anything by mouth to an unconscious person.

SECTION VI REACTIVITY DATA

STABILITY	STABLE	√	CONDITIONS TO AVOID: Excessive heat
	UNSTABLE		

INCOMPATABILITY (Materials to Avoid): Strong oxidizing agents and reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Oxides of carbon and 1,4 Dioxane.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
MAY OCCUR		NO √	None Known

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Wearing appropriate protection equipment (see Section VIII), contain spill. Using an inert chemical absorbent, collect spilled material and place in a properly labeled container for disposal.

WASTE DISPOSAL METHOD

Dispose of in accordance with local, state, and federal regulations.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify Type) If fumes or vapors of this product are present, wear NIOSH approved self-contained respirator. For Example: MSA Comfo II Respirator, GMC Cartridge (Yellow) TC#-23C-47, and Type F Filter TC#-21C-133.

EYE PROTECTION	SKIN PROTECTION
Chemical splash goggles	Rubber gloves, apron, and boots
VENTILATION	**OTHER PROTECTION**
Local exhaust	Eye wash fountain and safety shower.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Do not ingest. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Store at ambient temperatures. Use with adequate ventilation. Keep container securely closed when not in use.

OTHER PRECAUTIONS

If spilled on floor, be alert for slippery footing until washed away with water. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For industrial use only.

SECTION X MISCELLANEOUS DATA

NIF - No Information Found NA - Not Available NE - Not Established
NAP - Not Applicable

D.O.T. Class - Not Regulated

If this product contains a toxic chemical, subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372, it is listed in Section II of this Material Safety Data Sheet followed by two asterisks (**).

John A. Nygren/Technical Director

PREPARED BY John A. Nygren DATE

CT-907
Revised Edition
October 23, 1989

Florida Department of Environmental Regulation

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

Lawton Chiles, Governor

Carol M. Browner, Secretary

September 13, 1991

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Alvin N. Critzer, Plant Manager
Harris Semiconductor
Post Office Box 883
Melbourne, Florida 32901

Dear Mr. Critzer:

Re: Amendment to Construction Permit No. AC 05-190799 (Bldg. 55)

The Department has reviewed Mr. Constantine Triantafyllidis' letter received July 22, 1991 (processing fee received August 8, 1991), requesting approval to replace an existing scrubber system with a new one on the above referenced source/building. Based on discussions with the Central District office, the Department does not object to the replacement of the control system so long as the source's actual pollutant emissions do not increase, which shall be determined through compliance testing. Therefore, the following will be changed and added:

1. Building 55:

o Existing/Replacment Control System(s)

a) F55SO1/F55SO1

o F55SO1: (old) a Harrison 1,000 scfm horizontal cross-flow scrubber using plastic saddle packing to remove chemical vapors (i.e., acid gas and VOC/solvent vapor emissions); Model No. HF-10.

o F55SO1: (new) a Tri-Mer 9,500 scfm horizontal counter-flow fume scrubber, with a mist elimminator, using a Polypro filter pack to remove chemical vapors (i.e., acid gas and VOC/solvent vapor emissions); Model No. F/W 3.

Attachment be Incorporated:

o Mr. Constantine Triantafyllidis' letter with enclosures received July 22, 1991.

o Mr. Constantine Triantafyllidis' letter received August 8, 1991.

This letter must be attached to your construction permit, No. AC 05-190799, and shall become a part of the permit.

Sincerely,

for STEVE SMALLWOOD, P.E.
Director
Division of Air Resources
Management

SS/BM/rbm

Attachments

c: C. Collins, Central Dist.
C. Triantafyllidis, HS

Attachment

HARRIS

RECEIVED
JUL 22 1991
Division of Air
Resources Management

July 18, 1991

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

Re: Exhaust system modification; Permit Number AC 05-190799
Building 55 Air Permit, Harris Semiconductor.

Dear Mr. Fancy:

By this letter, Harris Semiconductor is providing the Department with notice of its intent to replace scrubber number F55S01 (Permit Number AC 05-190799) with a larger capacity wet scrubber system which will be renumbered F55S01. Consequently, an amendment to the above mentioned permit is requested.

The replacement scrubber for the above system is a Tri-Mer model F/W 3 horizontal counter flow scrubber rated for 9,500 scfm of air flow. The scrubber will be located on the roof of Building 55 at a height of 29 feet (the height of the roof is 17 feet) and will replace the F55S01, 1,000 scfm rated Harrison scrubber, Model No. HF-10 that is currently servicing the Building.

The proposed design will incorporate the existing bottle crushing operation into the exhaust system and thus minimize any VOC/Solvent emissions from that process. The exhaust system currently includes the acid bottle wash stations and a station used for the release of chemicals from damaged 'bubbler' containers as described in the process description for the building enclosed with this submittal.

Information on the existing scrubber system is provided in Attachment I and information on the replacement Tri-Mer model F/W 3 scrubber is provided in Attachment II. A list of the most commonly used chemicals which are anticipated to be exhausted to the proposed scrubber is also included in Attachment II. The proposed exhaust requirements for the operations at Building 55 can be handled adequately by the replacement scrubber.

If the Department has no objection, we will proceed with the course of action described above with completion by the end of August.

In addition, enclosed please find a letter executed by Mr. John Cornell, President of Harris Semiconductor, authorizing Mr. John Steiner, Director of Environmental and Facilities to represent the owner.

If you have any questions or require any additional information, please contact me at (407) 729-5301.

Sincerely,

Constantine Triantafyllidis

Constantine Triantafyllidis, R.E.P.
Environmental Engineer

cc: B. Mitchell, Tallahassee
C. Collins, Orlando
K. Smith
J. Steiner
D. Bock

HARRIS
SEMICONDUCTOR

JON E. CORNELL
President

6 March 1991

TO WHOM IT MAY CONCERN:

I, Jon E. Cornell, President of HARRIS SEMICONDUCTOR, a sector within HARRIS CORPORATION, do hereby authorize John Steiner, Sector Director of Facilities and Environmental Affairs of said HARRIS SEMICONDUCTOR, to execute applications for Pollution Source permits to the Department of Environmental Regulation of the State of Florida, and the United States Environmental Protection Agency. Mr. Steiner is further authorized to sign monitoring reports and execute other correspondence related to these permits for the Harris Semiconductor, Melbourne, Florida site.

Jon E. Cornell

ATTACHMENT I.

EXISTING CONDITIONS

BUILDING 55

HARRIS SEMICONDUCTOR -- AIR PERMIT INFORMATION

CURRENT PERMIT

BUILDING: 55 DATE ISSUED : 02/28/91
PERMIT NUMBER: AC 05-190799 RENEWAL DATE:
PERMIT TYPE : CONSTRUCTION DATE EXPIRES: 12/31/91

AREA SERVED: BUILDING 55
PROCESS DESCRIPTION: CHEMICAL VAPOR SCRUBBER

BLDG PERMIT INFORMATION
VOL. RATE (SCFM): 1,000
ACID MIST(TON/YR): 0.1
SOLV/VOCS(TON/YR): 0.3

OPER. (HRS/YEAR): 8760

SPECIFIC CONDITIONS
ANNUAL OPERATING REPORT : 3/01
NOTIFICATION OF VE TEST : N/A
ANNUAL VIS EMISSION TEST: N/A

SCRUBBER INFORMATION

MANUFACTURER : HARRISON MODEL NUMBER : HF-10
SERIAL NUMBER: MATERIAL : POLYPRO
HARRIS ID NUMBER: F55S01
LOCATION : B55 ROOF NORTHWEST CORNER

DESCRIPTION : HORIZONTAL CROSS-FLOW, PLASTIC SADDLE PACKING, LIQUID DISTRIBUTION THROUGH MAIN HEADER, NO SPRAY NOZZLES

DESIGN DATA

VOLUME FLOW RATE (CFM): 1,000 STACK HEIGHT (FT): 12
RECIRCULATION RATE (GPM): 19 STACK DIAMETER (IN): 14
MAKE UP WATER RATE (GPM): 2.0 STACK VELOCITY (FPM): 935
PRESSURE DROP (IN):

ACTUAL DATA

VOLUME FLOW RATE (CFM): 467 PRESSURE DROP (IN): 0.9
RECIRCULATION RATE (GPM): 14 MAKE UP WATER RATE (GPM): 3
DATE: 06/22/90

RECIRCULATION PUMP INFORMATION

MANUFACTURER : LELAND FARADAY MODEL NUMBER : 92J305A
SERIAL NUMBER: N/A HP : 0.5 RPM : 3450
BRKR LOCATION: FED FROM MCC :

FAN INFORMATION

HARRIS ID # : F55E04
MANUFACTURER : CRECO MODEL NUMBER: 122
SERIAL NUMBER: N/A MATERIAL : PVC
DESCRIPTION : CENTRIFUGAL BLOWER

DESIGN DATA
VOLUME FLOW RATE (CFM): 1,000 STATIC PRESS (IN): 3.0
SPEED (RPM):

ACTUAL DATA
VOLUME FLOW RATE (CFM): STATIC PRESS (IN):
SPEED (RPM) : DATE :

FAN MOTOR INFORMATION

MANUFACTURER : MODEL NUMBER:
SERIAL NUMBER: HP: 1.5 SPEED (RPM): 1750

BRKR LOCATION: FED FROM MCC:

PERMIT HISTORY

PERMIT NUMBER: AC 05-104523
DATE EXPIRED : 06/30/86

PERMIT NUMBER: AC 05-164544
DATE EXPIRED : 06/30/91

PERMIT NUMBER:
DATE EXPIRED :

PERMIT NUMBER:
DATE EXPIRED :

ATTACHMENT II.

PROPOSED CONDITIONS

BUILDING 55

HARRIS SEMICONDUCTOR
BUILDING 55
LIST OF SOLVENTS

1,1,1-TRICHLOROETHANE
1,2,4-TRICHLOROBENZENE
1,2-DICHLOROBENZENE
ACETONE
CELLOSOLVE ACETATE
CRESOL
ETHANOL
ETHYLBENZENE
ETHYLENE GLYCOL
FREON 113
ISOPROPANOL
METHANOL
N-BUTYL ACETATE
N-METHYL PYRROLIDONE
PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE
TETRAMETHYL AMMONIUM HYDROXIDE
TOLUENE
XYLENE
HEXAMETHYLDISILAZANE

HARRIS SEMICONDUCTOR
BUILDING 55
LIST OF CHEMICALS

ACETIC ACID
AMMONIUM FLUORIDE
AMMONIUM HYDROXIDE
BORON TRIBROMIDE
HYDROCHLORIC ACID
HYDROFLUORIC ACID
NITRIC ACID
NITROGEN
OXYGEN
PHOSPHORIC ACID
PHOSPHOROUS OXYCHLORIDE
SULFURIC ACID
WASTE ACIDS
WASTE SOLVENTS
WASTE SULFURIC ACID

HARRIS SEMICONDUCTOR -- AIR PERMIT INFORMATION

CURRENT PERMIT

BUILDING: 55
PERMIT NUMBER: AC 05-190799
PERMIT TYPE : CONSTRUCTION
DATE ISSUED : 02/28/91
RENEWAL DATE:
DATE EXPIRES: 12/31/91

AREA SERVED: BUILDING 55
PROCESS DESCRIPTION: CHEMICAL VAPOR SCRUBBER

BLDG PERMIT INFORMATION

VOL. RATE (SCFM): 9,500
ACID MIST(TON/YR): 0.1
SOLV/VOCS(TON/YR): 0.3

OPER. (HRS/YEAR): 8760

SPECIFIC CONDITIONS

ANNUAL OPERATING REPORT : 3/31
NOTIFICATION OF VE TEST : N/A
ANNUAL VIS EMISSION TEST: N/A

SCRUBBER INFORMATION

MANUFACTURER : TRI-MER CORP.
SERIAL NUMBER: 7026
HARRIS ID NUMBER: F55S01
LOCATION : B55 ROOF
MODEL NUMBER : F/W 3
MATERIAL : PVC

DESCRIPTION : HORIZONTAL COUNTER-FLOW, MIST ELIMINATOR, POLYPRO FILTER PACK

DESIGN DATA

VOLUME FLOW RATE (CFM): 9,500
RECIRCULATION RATE (GPM): 30
MAKE UP WATER RATE (GPM): 3.0
PRESSURE DROP (IN): 1.5
STACK HEIGHT (FT): 12
STACK DIAMETER (IN): 14
STACK VELOCITY (FPM):

ACTUAL DATA

VOLUME FLOW RATE (CFM):
RECIRCULATION RATE (GPM):
DATE:
PRESSURE DROP (IN):
MAKE UP WATER RATE (GPM):

RECIRCULATION PUMP INFORMATION

MANUFACTURER : FLOTEK
SERIAL NUMBER: 603887B801
BRKR LOCATION: NEXT TO UNIT
MODEL NUMBER : C7P3-1194V
HP : 2 RPM : 3450/2850
FED FROM MCC : CKT 25,27,29

FAN INFORMATION

HARRIS ID # : F55E13
MANUFACTURER : TRI-MER CORP.
SERIAL NUMBER: 7026
DESCRIPTION : CENTRIFUGAL BLOWER, BACKWARD INCLINED BLADES
MODEL NUMBER: 24 UB
MATERIAL : PVC

DESIGN DATA
VOLUME FLOW RATE (CFM): 6,000 STATIC PRESS (IN):
SPEED (RPM): 1750

ACTUAL DATA
VOLUME FLOW RATE (CFM): STATIC PRESS (IN):
SPEED (RPM) : DATE :

FAN MOTOR INFORMATION

MANUFACTURER : LINCOLN MODEL NUMBER:
SERIAL NUMBER: HP: 15 SPEED (RPM): 1750

BRKR LOCATION: NEXT OT UNIT FED FROM MCC: CKT 7,9,11

PERMIT HISTORY

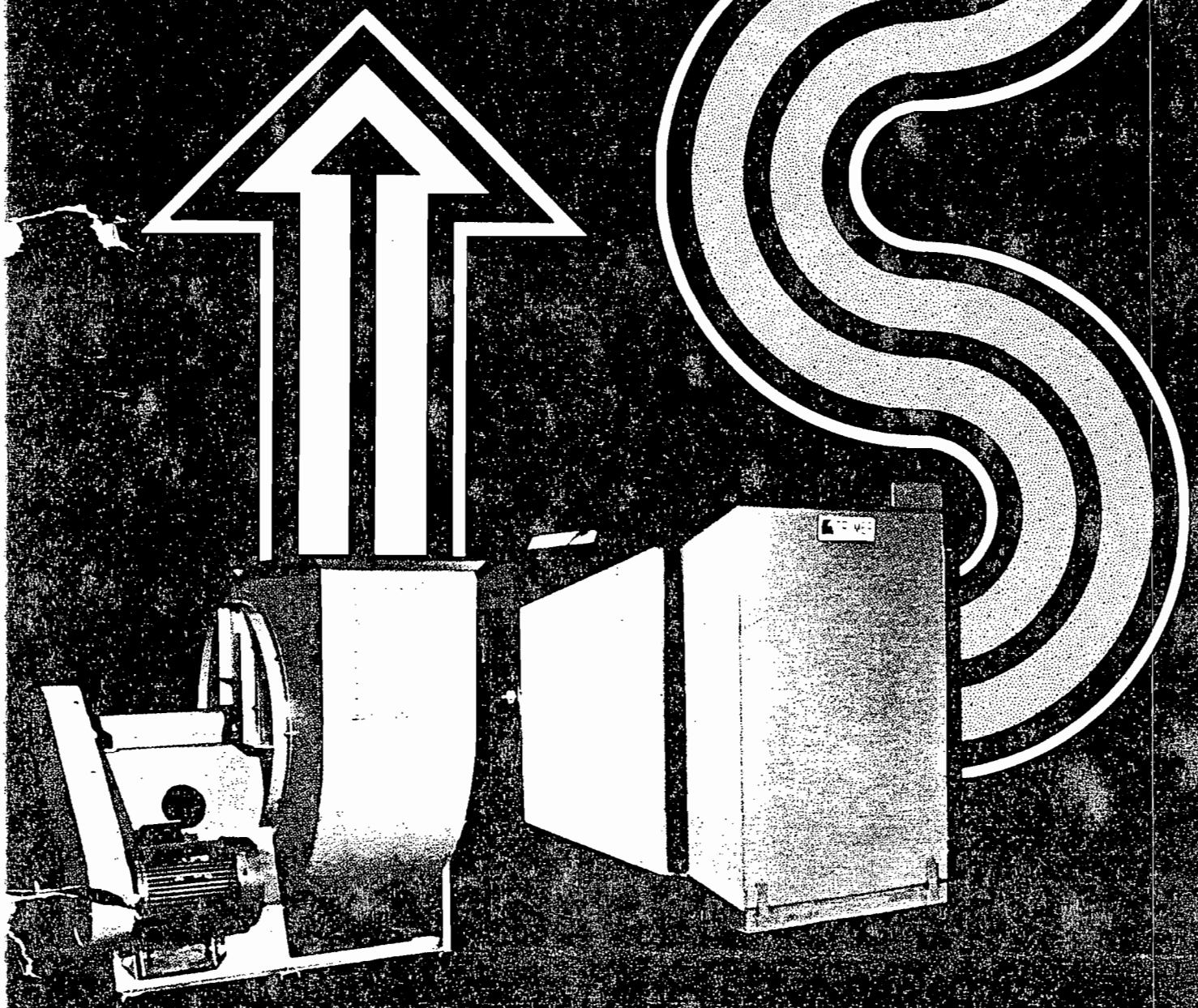
PERMIT NUMBER: AC 05-104523
DATE EXPIRED : 06/30/86

PERMIT NUMBER: AC 05-164544
DATE EXPIRED : 06/30/91

PERMIT NUMBER:
DATE EXPIRED :

PERMIT NUMBER:
DATE EXPIRED :

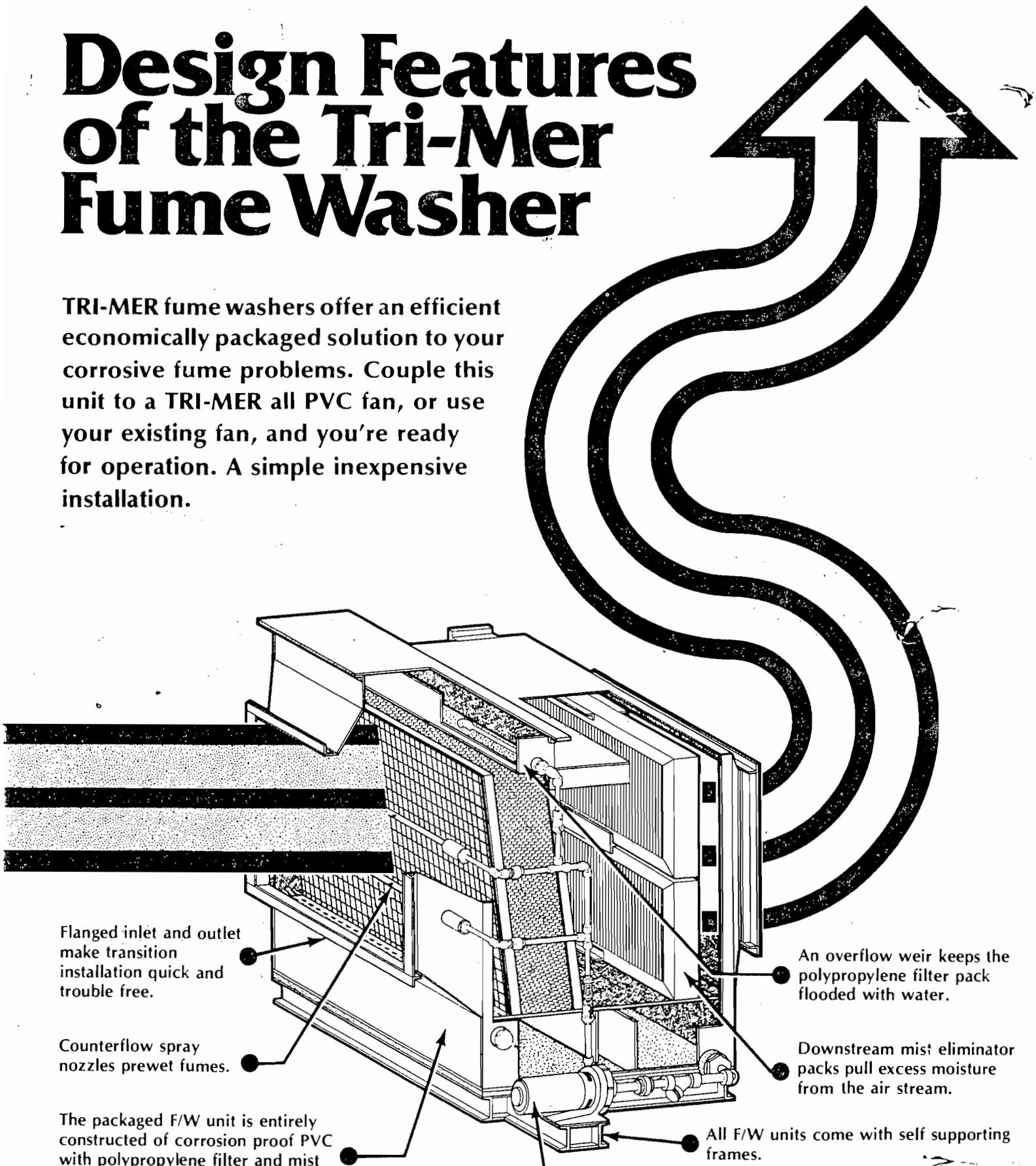
The Tri-Mer Fume Washer



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 the polypropylene filter pack flooded with water.

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

All F/W units come with self supporting frames.

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

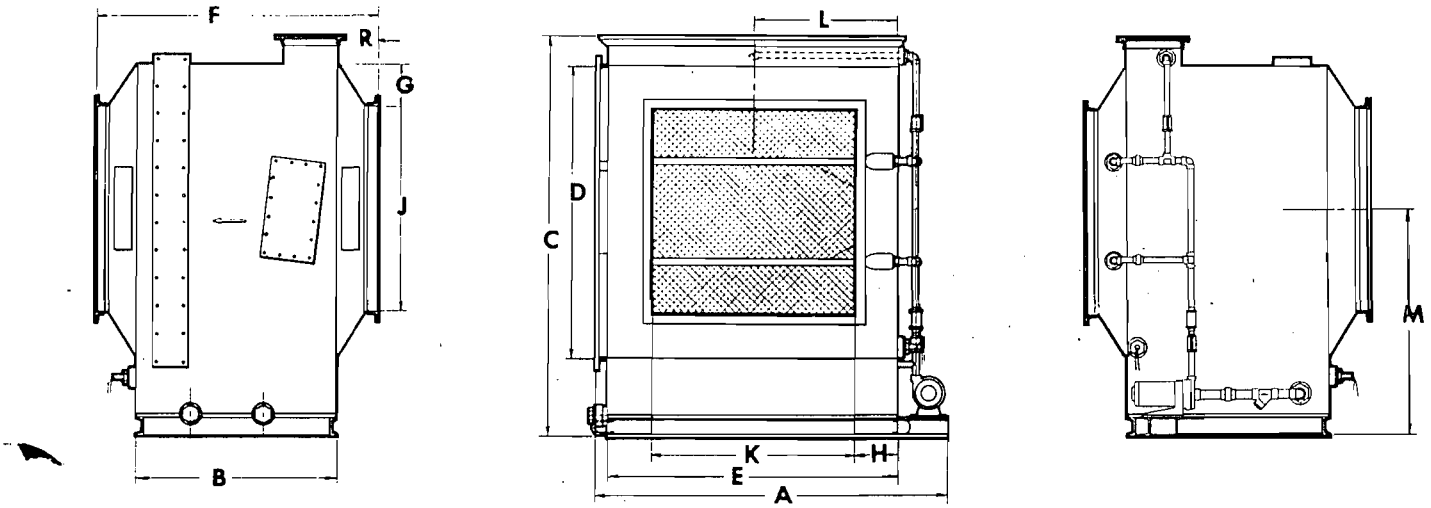
NOTE — Models F/W-10 through F/W-16 require remote recirculation tanks per manufacturers suggestion.

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

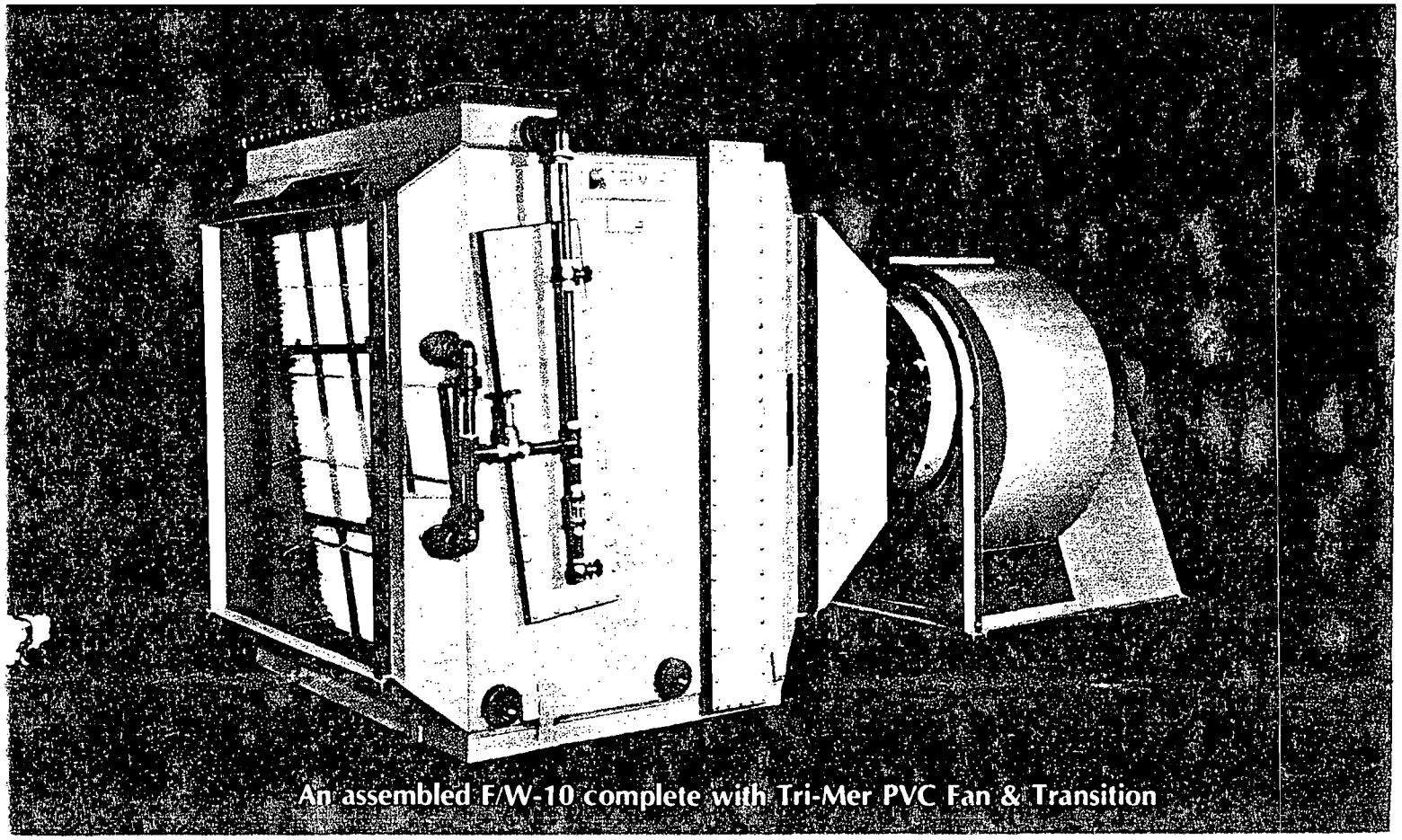
F/W	A		B	C		D	E	F	G	H	J	K	L	M		R	CHANNEL	ANGLE	DRAIN	G.P.M.	No. OF HEADERS	PIPE	CFM CAPACITY
1	3'-11½"	4'-4½"	3'-6"	4'-3"	5'-3"	3'-4"	3'-4"	4'-10"	6"	6"	28"	28"	1'-8"	2'-0¾"	3'-0¾"	8"	4"@5.4#	1½"x1½"x3/16"	3"	8	2	¾"	3,000 to 5,500
2	4'-3½"	4'-8½"	3'-10"	4'-6¾"	5'-6¾"	3'-8"	3'-4"	5'-2"	4½"	4½"	35"	35"	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'-7¼"	3'-7¼"	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'-5"	3'-8½"	6'-2¾"	7'-2¾"	5'-4"	5'-4"	5'-2½"	9½"	9½"	45"	45"	2'-8"	3'-0¾"	4'-0¾"	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'-11¾"		8'-11"	8'-11"	6'-5"	1'-3½"	1'-3½"	76"	76"	4'-5½"	5'-0¼"		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"	128"	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'-7"	11'-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.



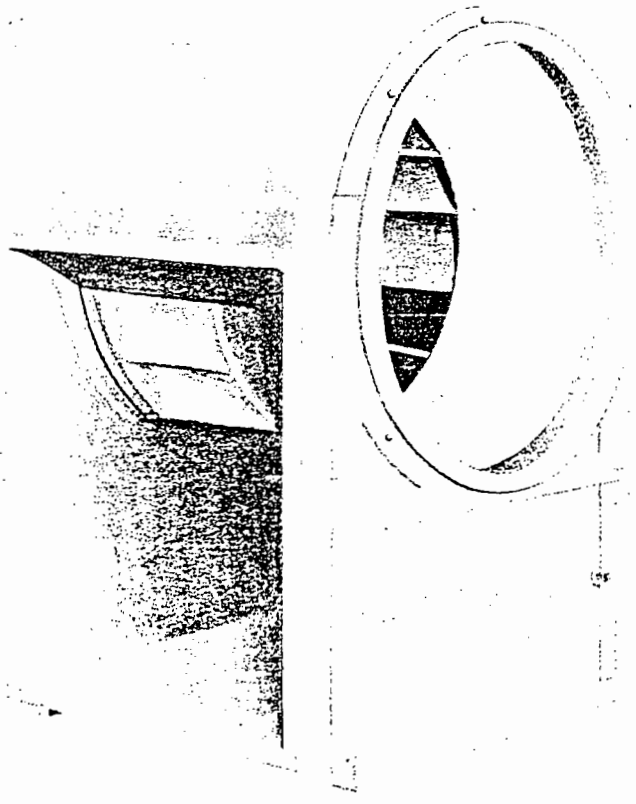
An assembled F/W-10 complete with Tri-Mer PVC Fan & Transition

PVC

UNPLASTICIZED POLYVINYL CHLORIDE

NON-OVERLOADING BLOWERS

(BACKWARD INCLINED BLADES)



® Tri-Mer® Corporation

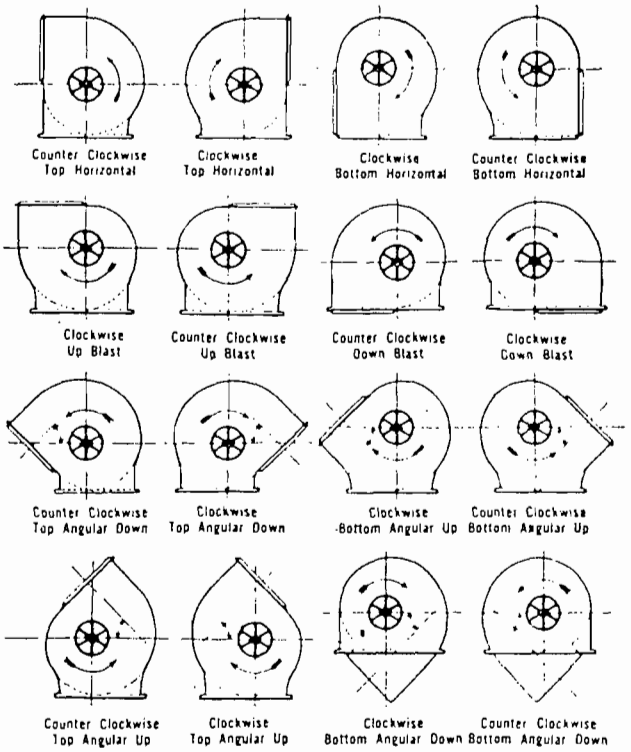
Air Pollution Control Systems

DESIGN • ENGINEERING • MANUFACTURING

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

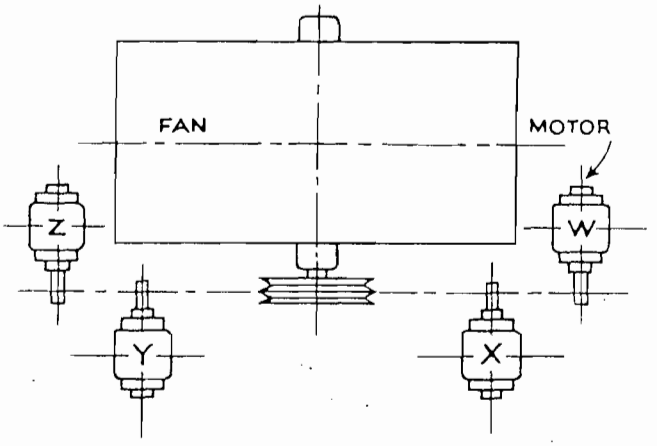
STANDARD NOMENCLATURE

Direction of Rotation and Discharge



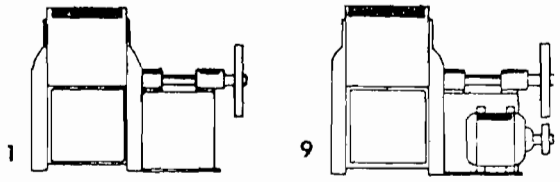
Direction of rotation is determined from the drive side. On single inlet fans, drive side is considered as opposite inlet, regardless of actual drive location.

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.

TRI-MER CORPORATION
Air Pollution Control Systems

CAPACITY TABLES

SIZE 22

Wheel Diameter = 22¼"
Wheel Circumference = 5.82'

Inlet Diameter = 24⅞"
Fan Outlet Area = 2.85 sq. ft.

Safe RPM = 2060
Maximum BHP = $1.08\left(\frac{RPM}{1000}\right)^3$

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
2280	800	561	.19	614	.25	663	.31	708	.38	751	.45	831	.61	1101	1.31	1324	2.16	1517	3.13	1687	4.18	1845	5.35
2565	900	603	.23	654	.31	700	.37	743	.44	783	.52	860	.68	1118	1.41	1336	2.29	1526	3.28	1696	4.38	1852	5.57
2850	1000	647	.28	696	.36	739	.44	780	.52	819	.61	892	.76	1141	1.53	1352	2.43	1538	3.45	1704	4.57	1857	5.78
3135	1100	693	.34	738	.42	780	.51	820	.61	857	.68	926	.86	1167	1.66	1370	2.58	1552	3.63	1716	4.78	1869	6.03
3420	1200	738	.41	782	.51	823	.59	859	.68	896	.78	963	.97	1193	1.81	1393	2.77	1569	3.83	1730	5.01	1879	6.27
3705	1300	785	.48	827	.58	866	.68	902	.78	936	.88	1001	1.09	1224	1.96	1415	2.95	1589	4.05	1748	5.26	1894	6.55
3990	1400	833	.57	873	.68	909	.78	944	.89	978	1.01	1040	1.22	1256	2.14	1443	3.16	1611	4.29	1765	5.51	1908	6.82
4275	1500	882	.68	919	.79	954	.91	988	1.01	1020	1.13	1080	1.36	1290	2.33	1472	3.39	1635	4.55	1785	5.79	1926	7.12
4560	1600	930	.79	966	.91	999	1.02	1033	1.15	1064	1.27	1122	1.52	1325	2.54	1501	3.63	1660	4.82	1810	6.11	1948	7.48
5130	1800	1030	1.06	1062	1.19	1092	1.32	1123	1.45	1153	1.61	1208	1.87	1401	3.01	1569	4.19	1719	5.44	1860	6.78	1992	8.21
5700	2000	1131	1.39	1159	1.53	1188	1.67	1216	1.82	1244	1.98	1295	2.28	1480	3.53	1640	4.81	1784	6.15	1918	7.55	2045	9.04
6270	2200	1232	1.79	1259	1.94	1286	2.11	1312	2.26	1336	2.41	1385	2.75	1560	4.11	1715	5.51	1852	6.92	1981	8.41		
6840	2400	1335	2.26	1358	2.41	1384	2.59	1408	2.76	1432	2.94	1478	3.31	1646	4.77	1793	6.28	1925	7.79	2051	9.39		
7410	2600	1439	2.82	1462	2.99	1483	3.16	1507	3.36	1529	3.55	1570	3.91	1731	5.51	1873	7.12	2002	8.76				
7980	2800	1542	3.46	1564	3.65	1584	3.83	1605	4.02	1626	4.22	1667	4.63	1821	6.34	1958	8.08						
8550	3000	1647	4.21	1668	4.41	1687	4.61	1706	4.81	1726	5.01	1764	5.44	1908	7.23	2042	9.11						
9120	3200	1752	5.04	1771	5.26	1788	5.45	1808	5.69	1826	5.91	1861	6.34	2000	8.24								
9690	3400	1857	6.01	1875	6.22	1892	6.44	1908	6.65	1927	6.91	1960	7.36										

BHP shown does not include belt drive loss.

TRI-MER CORPORATION
Air Pollution Control Systems

SIZE 24

Wheel Diameter = 24½"
Wheel Circumference = 6.40'

Inlet Diameter = 27⅜"
Fan Outlet Area = 3.45 sq. ft.

Safe RPM = 1875
Maximum BHP = $1.73\left(\frac{RPM}{1000}\right)^3$

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
2760	800	506	.23	554	.31	599	.39	639	.47	678	.55	750	.74	994	1.61	1196	2.65	1369	3.83	1524	5.13	1667	6.56
3105	900	544	.28	590	.37	632	.46	671	.55	707	.64	776	.83	1010	1.72	1207	2.81	1378	4.02	1532	5.37	1672	6.83
3450	1000	584	.34	628	.44	668	.54	705	.63	739	.73	805	.94	1030	1.87	1221	2.98	1389	4.24	1539	5.61	1677	7.09
3795	1100	626	.42	666	.52	704	.62	740	.73	774	.84	836	1.06	1054	2.04	1237	3.17	1402	4.46	1549	5.86	1688	7.31
4140	1200	667	.51	706	.61	743	.73	776	.84	809	.96	869	1.19	1078	2.21	1258	3.39	1417	4.71	1563	6.14	1697	7.59
4485	1300	709	.61	747	.72	782	.84	814	.96	845	1.09	904	1.34	1105	2.41	1278	3.62	1435	4.97	1578	6.45	1710	8.03
4830	1400	753	.71	788	.84	821	.96	853	1.11	883	1.23	939	1.51	1134	2.63	1303	3.88	1455	5.26	1594	6.76	1723	8.37
5175	1500	797	.83	830	.97	851	1.11	892	1.24	921	1.39	975	1.67	1165	2.86	1329	4.16	1476	5.58	1612	7.11	1739	8.74
5520	1600	840	.97	872	1.11	902	1.26	933	1.41	961	1.56	1013	1.87	1197	3.11	1356	4.46	1499	5.91	1634	7.49	1759	9.18
6210	1800	930	1.31	959	1.46	986	1.62	1014	1.78	1041	1.96	1090	2.31	1265	3.68	1416	5.14	1552	6.67	1680	8.32	1799	10.1
6900	2000	1021	1.71	1047	1.87	1072	2.05	1098	2.23	1123	2.42	1170	2.79	1337	4.32	1481	5.91	1611	7.54	1732	9.25	1847	11.1
7590	2200	1113	2.19	1137	2.38	1161	2.57	1185	2.77	1206	2.96	1251	3.37	1409	5.03	1549	6.75	1672	8.48	1789	10.3		
8280	2400	1205	2.77	1227	2.96	1249	3.17	1271	3.38	1293	3.61	1335	4.05	1486	5.85	1619	7.71	1738	9.56	1852	11.5		
8970	2600	1299	3.46	1320	3.67	1339	3.87	1361	4.12	1381	4.35	1418	4.79	1563	6.75	1691	8.73	1808	10.7				
9660	2800	1392	4.24	1412	4.47	1430	4.69	1449	4.93	1468	5.18	1505	5.68	1644	7.78	1768	9.91						
10350	3000	1487	5.15	1506	5.41	1523	5.64	1541	5.89	1558	6.15	1593	6.68	1723	8.86	1844	11.2						
11040	3200	1582	6.18	1599	6.45	1615	6.69	1633	6.98	1649	7.24	1681	7.78	1806	10.1								
11730	3400	1677	7.36	1693	7.63	1709	7.91	1723	8.16	1740	8.46	1770	9.02										

BHP shown does not include belt drive loss.

TRI-MER CORPORATION
Air Pollution Control Systems

SIZE 27

Wheel Diameter = 27"
Wheel Circumference = 7.06'

Inlet Diameter = 30"
Fan Outlet Area = 4.19 sq. ft.

Safe RPM = 1700
Maximum BHP = $3.10\left(\frac{RPM}{1000}\right)^3$

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	BPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3352	800	445	.25	484	.34	519	.43	551	.52	583	.61	643	.81										
3771	900	480	.32	517	.41	551	.51	582	.61	611	.71	667	.91	872	1.88								
4190	1000	517	.38	552	.49	584	.61	614	.71	642	.81	694	1.03	885	2.04								
4609	1100	553	.46	587	.58	618	.71	647	.81	674	.93	724	1.17	904	2.22	1069	3.46						
5028	1200	591	.56	623	.68	653	.81	681	.94	707	1.07	755	1.32	925	2.43	1080	3.69	1228	5.13				
5447	1300	629	.66	660	.81	689	.93	716	1.08	741	1.21	787	1.49	950	2.65	1097	3.95	1237	5.42				
5866	1400	669	.78	698	.93	725	1.08	751	1.22	776	1.37	822	1.67	978	2.91	1118	4.25	1249	5.73	1377	7.32		
6285	1500	709	.92	736	1.07	762	1.23	787	1.39	811	1.55	855	1.86	1007	3.16	1141	4.56	1267	6.09	1389	7.75	1504	9.52
6704	1600	750	1.09	774	1.23	800	1.41	823	1.57	847	1.74	890	2.03	1038	3.45	1167	4.91	1286	6.46	1403	8.16	1515	9.97
7542	1800	832	1.46	854	1.63	875	1.81	898	1.98	920	2.17	960	2.22	1102	4.09	1222	5.65	1335	7.35	1440	9.08	1545	11.1
8380	2000	916	1.92	935	2.11	955	2.29	975	2.49	994	2.68	1033	3.11	1168	4.81	1283	6.52	1389	8.31	1489	10.2	1585	12.1
9213	2200	1001	2.48	1017	2.66	1035	2.86	1053	3.08	1072	3.31	1107	3.79	1237	5.61	1347	7.48	1448	9.41	1543	11.4	1632	13.4
10056	2400	1087	3.16	1102	3.35	1117	3.55	1134	3.79	1150	4.01	1183	4.48	1308	6.52	1414	8.54	1510	10.6	1600	12.7	1687	14.9
10894	2600	1173	3.94	1185	4.12	1199	4.35	1214	4.59	1229	4.83	1261	5.36	1378	7.51	1483	9.74	1577	11.9	1662	14.2		
11732	2800	1258	4.83	1272	5.07	1283	5.29	1297	5.54	1312	5.81	1340	6.33	1450	8.62	1551	11.1	1643	13.4				
12570	3000	1345	5.89	1356	6.11	1369	6.37	1380	6.61	1394	6.89	1419	7.43	1525	9.89	1622	12.4						
13408	3200	1431	7.07	1442	7.31	1453	7.58	1464	7.83	1476	8.12	1500	8.68	1599	11.2	1694	13.9						
14246	3400	1518	8.42	1527	8.65	1539	8.95	1550	9.24	1559	9.49	1582	10.1	1676	12.7								

BHP shown does not include belt drive loss.

WHY SPECIFY A TRI-MER BLOWER

Summarizing our unique combination of product benefits, **TRI-MER** blowers offer you . . .

Exceptional Corrosion Resistance
Compatability With Pollution Control Systems
Fire Retardancy
Excellence in Design and Materials
Easy Installation and Maintenance
Quality Control and Fine Balance
Wide Range of Sizes and Discharge Configurations
Broad Selection of Accessories

✱ NOW LET'S LOOK AT PERFORMANCE
HERE ARE SOME FACTS YOU NEED TO KNOW:

When ordering a blower, most buyers are concerned with three parameters; C.F.M., static pressure, and horsepower required. Occasionally outlet velocity may be important. C.F.M. concerns the volume of air you wish to move, static pressure corresponds to pressure drop, and horsepower required relates to efficiency.

Static pressure or resistance to air flow in a system is usually measured in inches of water. It equals the sum of all the pressure losses due to friction through the ductwork including straight sections, restrictions, and turns. Static pressure is sometimes calculated, sometimes estimated, and sometimes measured on an equivalent system. Whatever your method of determining your requirement, our backwardly-inclined non-overloading wheel design will protect your operation if system changes occur. In the event of static pressure change, only the C.F.M. and velocity will be altered; horsepower requirement remains essentially the same for the fan speed selected originally.

The table below illustrates this power limiting principle used in our Type I unplasticized PVC fans. **Note that color band on chart corresponds to best selection bands (shaded areas) on capacity tables.**

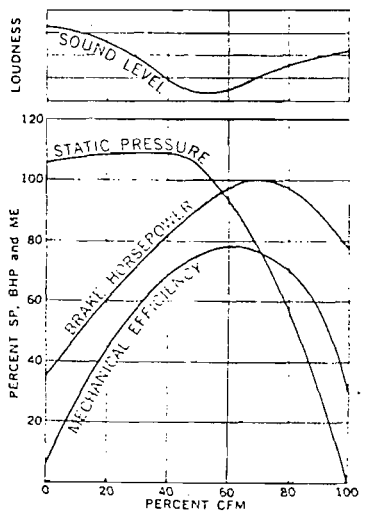


CHART I
TYPICAL FAN PERFORMANCE

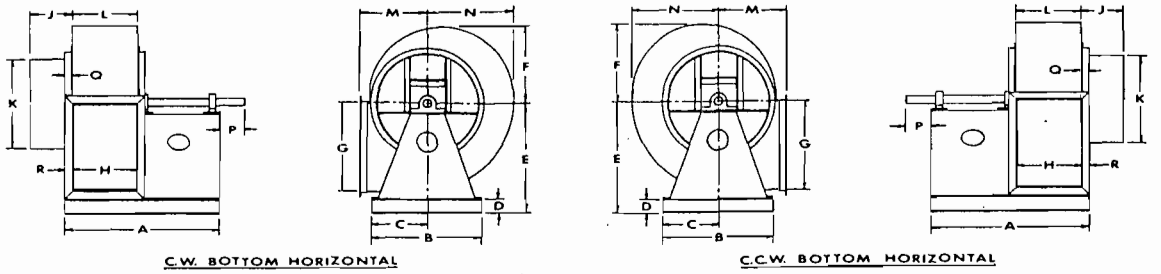
Design and Performance

Moderate Efficiency in Working Range — maximum efficiency level covers best selection area of static pressure curve, well to the right of peak allowing ample pressure reserve at most efficient rating points.

Lowest Sound Level in Working Range — Lowest sound level falls in best pressure selection range.

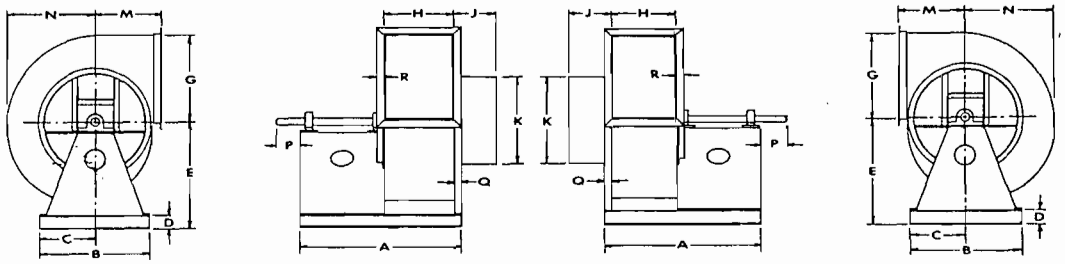
Non-overloading Horsepower Characteristic — brake horsepower levels off at at point that allows economical selection of motors that will not overload if system changes occur.

SWSI ARRANGEMENT 1



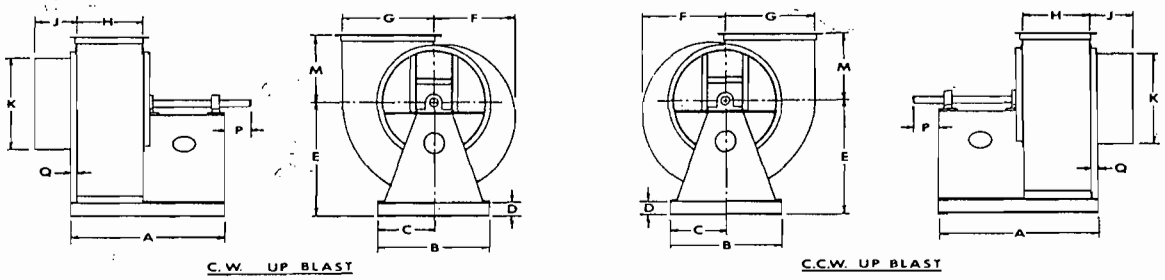
C.W. BOTTOM HORIZONTAL

C.C.W. BOTTOM HORIZONTAL



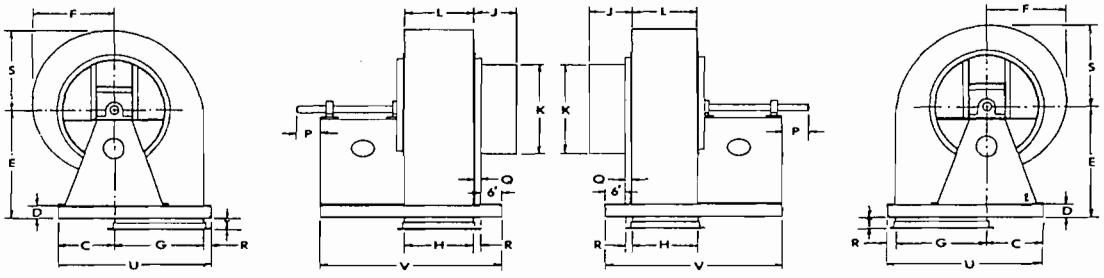
C.W. TOP HORIZONTAL

C.C.W. TOP HORIZONTAL



C.W. UP BLAST

C.C.W. UP BLAST



C.W. DOWN BLAST

C.C.W. DOWN BLAST

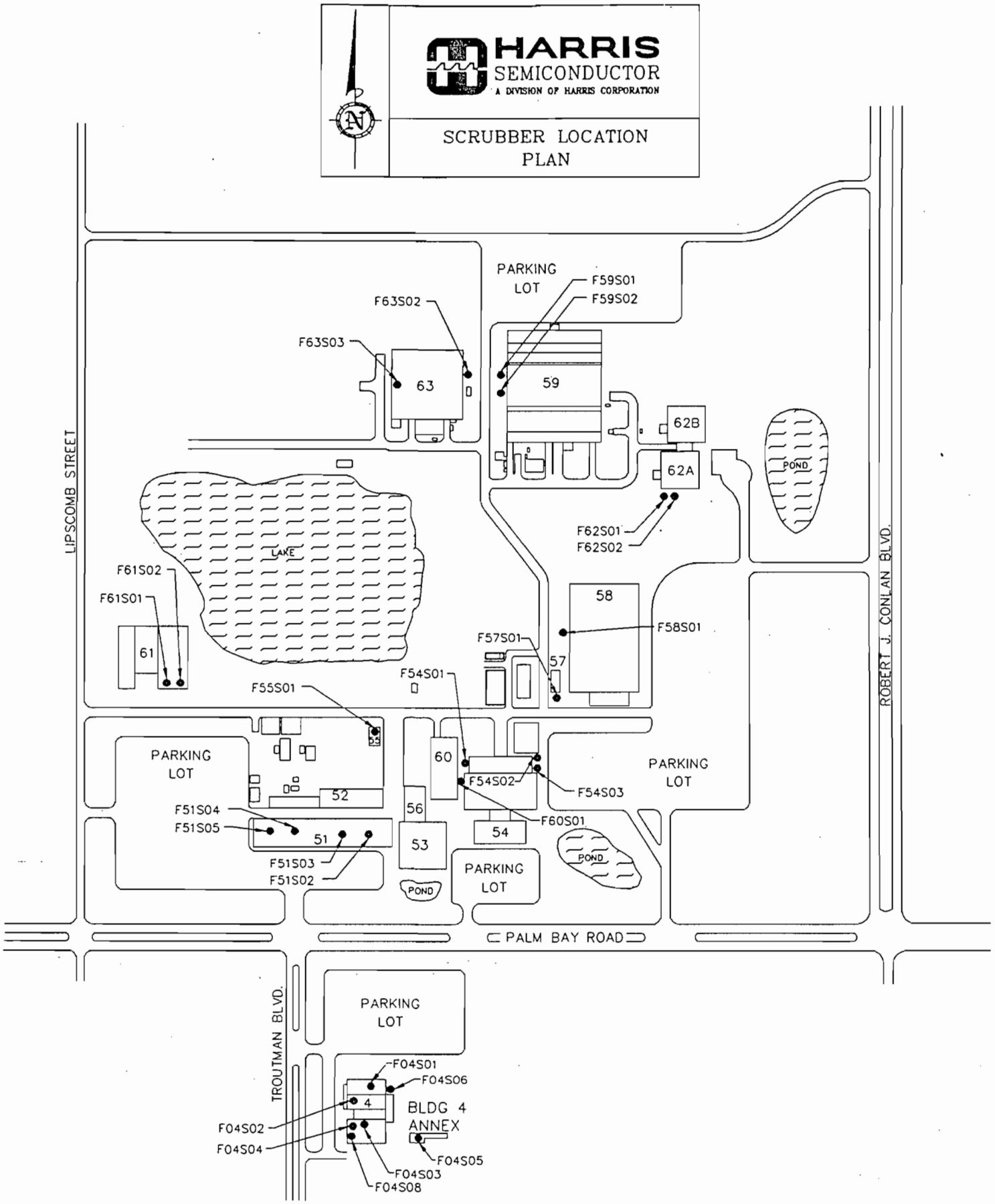
DIMENSIONS — CLASS II

CERTIFIED PRINTS FURNISHED UPON REQUEST

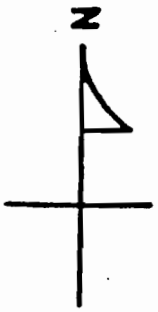
MODEL Nº	WHEEL DIA	SHAFT DIA	KEYWAY	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V
105	10 1/2	1	1/4 × 1/8 × 3 1/2	21 3/8	12	6	4	15 1/2	8 1/4	11 1/2	8 3/8	12	11	8 3/8	9	10 1/4	4	—	1 1/2	10 1/4	3	19	27 5/8
122	12 1/4	1	1/4 × 1/8 × 3 1/2	28 3/8	16	8	4	19 9/16	10	13	9 3/8	12	13	9 3/8	10 1/2	11 3/8	4	1 1/4	1 1/2	11 3/8	3	22 1/2	34 3/8
150	15	1 7/16	3/8 × 3/16 × 3 1/2	31 1/2	20	10	4	22 1/2	12 1/4	16	11 3/4	12	16	11 3/4	12 3/8	14	4	1 1/4	1 1/2	14	3	27 1/2	37 1/2
182	18 1/4	1 7/16	3/8 × 3/16 × 3 1/2	34 1/4	25	12 1/2	4	26	15	19 1/2	14 1/4	12	19	14 1/4	14 3/8	17	4	1 1/2	1 1/2	17	3	33 1/2	40 1/4
222	22 1/4	1 11/16	3/8 × 3/16 × 3 1/2	41 1/4	30	15	4	30 1/4	18 1/4	23 3/4	17 1/4	12	24	17 1/4	17 1/4	20 3/4	4	1 1/2	2	20 3/4	4	40 3/4	47 1/4
245	24 1/2	1 11/16	3/8 × 3/16 × 3 1/2	45 1/8	32	16	4	32 3/8	20 1/8	26 1/8	19 1/8	12	26	19 1/8	19 1/4	22 3/4	4	2	2	22 3/4	4	44 1/8	51 1/8
270	27	1 15/16	1/2 × 1/4 × 3 1/2	48 3/4	34	17	4	34 5/8	22	28 1/4	21 1/4	12	28	21 1/4	21 1/2	25 1/4	4 3/4	2	2	25 1/4	4	47 1/4	54 3/4
300	30	1 15/16	1/2 × 1/4 × 4	50 7/8	40	20	4	38 1/2	24 5/8	32	23 3/8	12	32	23 3/8	23 5/8	28	5 1/4	2	2	28	4	54	56 7/8
330	33	2 3/16	1/2 × 1/4 × 4	54 7/8	44	22	4	41 1/2	27	35	25 7/8	12	35	25 7/8	25 5/8	30 3/4	4 1/2	2	2	30 3/4	4	59	60 7/8
365	36 1/2	2 7/16	5/8 × 5/16 × 4 1/2	57 1/2	50	25	4	45 1/2	29 7/8	39	28 1/2	12	39	28 1/2	28	34	4 1/2	2	2	34	4	66	63 1/2
402	40 1/4	2 11/16	5/8 × 5/16 × 4 1/2	62 1/8	54	27	4	49 1/2	32 7/8	43	31 5/8	12	44	31 5/8	30 5/8	37 1/2	5 1/2	2	2	37 1/2	4	72	68 1/8
445	44 1/2	2 11/16	5/8 × 5/16 × 5	67 1/2	59	29 1/2	4	54	36 1/4	47 3/8	35	12	48	35	34	41 1/4	5 1/2	2 1/2	2	41 1/4	4	78 7/8	73 1/2
490	49	2 15/16	3/4 × 3/8 × 5	72 1/2	69	34 1/2	4	58 3/4	40 5/8	52 1/4	38 1/2	12	53	38 1/2	37 1/8	45 3/4	5 1/2	2 1/2	2	45 3/4	4	88 3/4	76 1/2
540	54	3 3/16	3/4 × 3/8 × 5	77 3/4	69	34 1/2	6	66 7/8	44 1/2	58 3/8	43 3/4	12	60	43 3/4	43 1/2	50	5 1/2	2 1/2	2	50	4	94 7/8	83 3/4
600	60	3 7/16	3/4 × 3/8 × 5	80 1/4	75	37 1/2	6	73 3/4	46 3/4	64 3/4	45 3/4	12	64	45 3/4	46	53 1/2	6 1/2	2 1/2	2	53 1/2	4	104 1/4	86 1/4

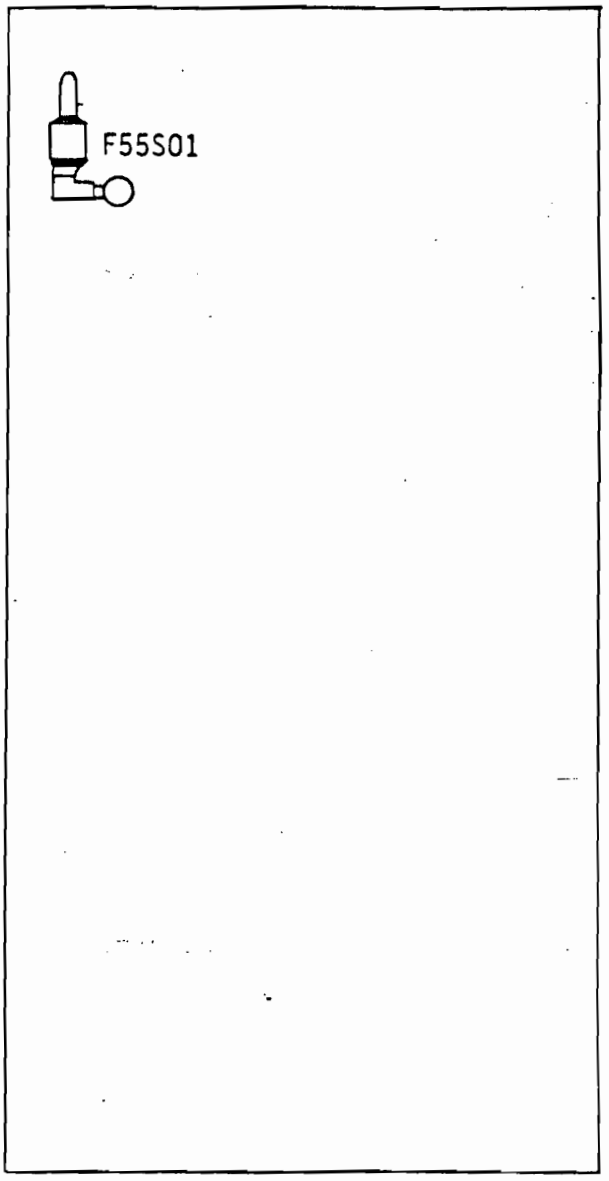
1974

REVISED 11-74


HARRIS
SEMICONDUCTOR
A DIVISION OF HARRIS CORPORATION
SCRUBBER LOCATION
PLAN
LIPSCOMB STREET
ROBERT J. CONLAN BLVD.
PALM BAY ROAD
TROUTMAN BLVD.
PARKING LOT
F63S02
F63S03
63
F59S01
F59S02
59
62B
62A
POND
F62S01
F62S02
LAKE
F61S02
F61S01
61
58
F58S01
F57S01
57
F54S01
F55S01
60
F54S02
F54S03
52
56
F60S01
54
F51S04
F51S05
51
53
F51S03
F51S02
POND
4
BLDG 4
ANNEX
F04S01
F04S06
F04S02
F04S04
F04S05
F04S03
F04S08

HARRIS SEMICONDUCTOR
SCRUBBER LOCATIONS
BUILDING 55





LEGEND

- Horizontal Scrubber
- Vertical Scrubber
- Exhaust Stack

Attachment

AC05-200859
$250 pd. 8-8-91

HARRIS

RECEIVED

AUG 0 8 1991

Division of Air
Resources Management

August 2, 1991

Mr. Bruce Mitchell
Engineer
State of Florida
Department of Environmental Regulation
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Processing Fee for the Modification to Construction Permit Number AC 05-190799 for Building 55, Harris Semiconductor.

Dear Mr. Mitchell:

Please, find enclosed a check for $ 250 to accompany the letter dated 7/18/1991 requesting a minor modification to the Construction Permit for Building 55 at Harris Semiconductor, Palm Bay facility.

If you have any questions or require any additional information, please contact me at (407) 729-5301.

Sincerely,

Constantine Triantafyllidis

Constantine Triantafyllidis, R.E.P.
Environmental Engineer
Environmental Services
Harris Semiconductor

cc: C. Fancy
K. Smith

Florida Department of Environmental Regulation

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

Lawton Chiles, Governor — Carol M. Browner, Secretary

Bruce's

June 14, 1991

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Alvin N. Critzer, Plant Manager
Harris Semiconductor
Post Office Box 883
Melbourne, Florida 32901

Dear Mr. Critzer:

Re: Amendments to Construction Permits Nos. AC 05-189176 (Bldg. 58), AC 05-189177 (Bldg. 60), AC 05-189178 (Bldg. 57), AC 05-190042 (Bldg. 63), AC 05-190668 (Bldg. 04), AC 05-190797 (Bldg. 62), AC 05-190798 (Bldg. 51), AC 05-190799 (Bldg. 55) AC 05-190800 (Bldg. 54), and AC 05-180707 (Bldg. 59)

The Department has reviewed Mr. Constantine Triantafyllidis' letters received April 1, April 8 and June 6 (FAX), 1991, requesting approval to replace existing scrubber systems with new ones on the above referenced sources/buildings. Also, there was a clarification request to a time frame requirement in a Specific Condition. Based on discussions with the Central District office, the Department does not object to the replacement of the control systems so long as the source's actual pollutant emissions do not increase, which shall be determined through compliance testing. Therefore, the following will be changed and added:

1. Building 54: AC 05-190800

o Existing/Replacment Control System(s)

a) F54SO3/F54SO2

o F54SO3: a Harrison 23,000 scfm horizontal cross-flow scrubber using plastic saddle packing to remove acid gas and VOC/solvent vapor emissions; Model No. HF-230.

o F54SO2: a Harrington 17,000 scfm horizontal cross-flow scrubber using PLASDEX 12060 PVC packing to remove acid gas and VOC/solvent vapor emissions; Model No. ECH 66-9PBS.

b) F54SO4/F54SO3

o F54SO4: a Harrison 23,000 scfm horizontal cross-flow scrubber using plastic saddle packing to remove acid gas and VOC/solvent vapor emissions; Model No. HF-230.

o F54SO3: a Beverly Pacific 30,000 scfm horizontal cross-flow scrubber using polypropylene packing to remove acid gas and VOC/solvent vapor emissions; Model No. PS-24HT.

2. Building 58: AC 05-189176

o Existing/Replacement Control System(s)

a) F58SO1, F58SO2 and F58EO1/F58SO1

o F58SO1: a Tri-Mer Corp. 12,500 scfm horizontal counter-flow scrubber using polypropylene packing to remove caustic and corrosive vapor emissions; Model No. F/W 5;

F58SO2: a Harrison 3,000 scfm horizontal cross-flow scrubber using plastic saddle packing to remove caustic and VOC/solvent vapor emissions; and,

F58EO1: a Brundage 5,358 scfm VOC/solvent vapor and heat exhaust fan.

o F58SO1: a Tri-Mer Corp. 20,000 scfm horizontal counter-flow scrubber using a polypro fiter pack to remove caustic and VOC/solvent vapor emissions; Model No. F/W 7.

3. Building 62: AC 05-190797

o Existing/Replacement Control System(s)

a) F62SO1/F62SO1

o F62SO1: a Beverly Pacific 24,000 scfm horizontal cross-flow vapor scrubber using polypropylene packing to remove acid gas emissions; Model No. PS-24HT.

o F62SO1: a Harrington 17,000 scfm horizontal cross-flow scrubber using PLASDEX 12060 PVC packing to remove acid gas and VOC/solvent vapor emissions; Model No. ECH 66-9PBS.

4. After rule evaluation, the Department no longer includes the referenced phrase in the Specific Condition (underlined). Therefore, the following shall be changed:

a. AC 05-189176, -189177, 189178, -190042, -190668, -190797, -190798, -190799 and -190800

Specific Condition No. 13.:

From: An application for an operation permit must be submitted to the Central District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

To: An application for an operation permit must be submitted to the Central District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

b. AC 05-180707

Specific Condition No. 14.:

From: An application for an operation permit must be submitted to the Central District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the

applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

To: An application for an operation permit must be submitted to the Central District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Attachments to be Incorporated:

o Mr. Constantine Triantafyllidis' letter with enclosures received April 1, 1991.

o Mr. Constantine Triantafyllidis' letter with enclosures received April 8, 1991.

o Mr. Constsntine Triantafyllidis' letter with attachment received June 6, 1991, via FAX.

This letter must be attached to your air construction permits, Nos. AC 05-189176, -189177, -189178, -190042, -190668, -190797, -190798, -190799, -190800 and -180707, and shall become a part of the permits.

Sincerely,

STEVE SMALLWOOD, P.E.
Director
Division of Air Resources
Management

SS/BM/rbm

Attachments

c: C. Collins, Central Dist.
C. Triantafyllidis, HS

HARRIS SEMICONDUCTOR
FACILITIES ENVIRONMENTAL-BUILDING 59
FAX TRANSMITTAL

DATE: 06/06/1991

TO: Mr. Bruce Mitchell FAX # (904) 922-6979

FROM: Constantine Triantafyllidis FAX# (407) 729-5153

OF PAGES (INCLUDING COVER) 2

MESSAGE: Bruce:

I have a couple of questions to ask you with respect to the construction permits for Harris Semiconductor.

Firstly, with regards to specific condition 13 addressed in the attached page, is there an obligation on our part to submit an operating permit within the time frame allowed (45 days) from the moment we conduct monitoring?

Secondly, I would like to request if the department is in agreement with the notification of scrubber replacements at Buildings 54, 58 and 62 (notifications were submitted to DER at the latter part of May). Also, I had requested an extension for Building 59 air permit and hope we get granted that.

Sincerely,

Constantine Triantafyllidis

(407) 724-7229
P.O. Box 883, Melbourne, FL 32901-00833

PERMITTEE:
Harris Semiconductor

Permit Number: AC 05-190668
Expiration Date: December 31, 19[illegible]

SPECIFIC CONDITIONS:

a) a sample shall be taken annually from each scrubber stack and analyzed using EPA Method 25A, pursuant to F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A;
b) the DER's Central District office shall receive at least 15 days notice in writing prior to sampling;
c) the report, summarizing the sampling results, shall be submitted to the DER's Central District office within 45 days after the last test run is completed;
d) the efficiency of each control system shall be established by tests (inlet and outlet) once every five years for operation permit renewal; and,
e) the annual VOC emissions shall be calculated using actual emissions data derived from stack test sampling results and the actual operating hours for the affected source/ building.

7. This permit will supercede all other permits previously issued on this source/Building No. 04.

8. The source/Building No. 04 is subject to all applicable provisions of F.A.C. Chapters 17-2 and 17-4 and 40 CFR (July, 1989 version).

9. Projected potential acid emissions are 1.5 TPY.

10. Building No. 04 is subject to the applicable provisions of F.A.C. Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; and, 17-4.130: Plant Operation - Problems.

11. Any modification pursuant to F.A.C. Rule 17-2.100, Modification, shall be submitted to the DER's Central District office and the Bureau of Air Regulation (BAR) office for approval.

12. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the BAR prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

13. An application for an operation permit must be submitted to the DER's Central District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

PM
4-5-91
Melbourne, FL

HARRIS SEMICONDUCTOR
HARRIS · RCA · GE · INTERSIL

April 3, 1991

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

RECEIVED
APR 8 1991
DER-BAQM

Re: Exhaust system modification; Permit Number AC 05-189176
Building 58 Air Permit, Harris Semiconductor.

Dear Mr. Fancy:

By this letter, Harris Semiconductor is providing the Department with notice of its intent to replace scrubber numbers F58S01, F58S02 and fan number F58E01 (Permit Number AC 05-189176) with a wet scrubber system which will be renumbered F58S01.

The replacement scrubber for the above systems is a Tri-Mer model F/W 7 horizontal counter flow scrubber rated for 20,000 scfm of air flow. The scrubber will be located at ground level to the west side of Building 58 and will replace the F58S01, 12,500 scfm rated Tri-Mer scrubber, Model No. F/W 5; the F58S02, 3,000 scfm rated Harrison scrubber, Model No. HF-30; and the F58E01 5,358 scfm rated Brundage fan that are currently servicing the Building.

The existing scrubber F58S01 exhibits water carry-over problems and fan vibration that our engineers have been unable to resolve.

Furthermore, it was considered appropriate to incorporate in this engineering design the vapor exhaust leading to the fan F58E01, through a wet scrubber system and thus provide treatment for those emissions.

Information on the existing scrubber systems is provided in Attachment I and information on the replacement Tri-Mer model F/W 7 scrubber is provided in Attachment II. The current exhaust requirements for the operations at Building 58 can be handled adequately by the replacement scrubber.

If the Department has no objection, we will proceed with the course of action described above with completion by the end of May. If you have any questions or require any additional information, please contact me at (407) 729-5301.

Sincerely,

Constantine Triantafyllidis

Constantine Triantafyllidis, REP
Environmental Engineer

cc: B. Mitchell, Tallahassee
C. Collins, Orlando
K. Smith
R. Cappadona

EMERY: 2413902499 5
4-1-91 ORL

File Copy

HARRIS SEMICONDUCTOR
HARRIS · RCA · GE · INTERSIL

RECEIVED
APR 01 1991
Bureau of
Air Regulation

March 29, 1991

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

Re: Exhaust system modification; Permit Numbers AC 05-190800; AC 05-190797
Buildings 54 and 62 Consolidated Air Permits

Dear Mr. Fancy:

By this letter, Harris Semiconductor is providing the Department with notice of its intent to replace scrubber numbers F54S03 and F54S04 (Permit Number AC 05-190800) as well as scrubber number F62S01 (Permit Number AC 05-190797).

The replacement scrubber for F54S03 is a F62S01 Beverly Pacific Model No. PS-24HT horizontal cross flow scrubber with a capacity for 30,000 scfm of air flow.

The replacement scrubber for F54S04 is a Harrington Model No. ECH 66-9PBS horizontal cross flow scrubber rated for 17,000 scfm. The scrubbers will be located to the northeast side of Building 54, at ground level and will replace the 23,000 scfm rated Harrison scrubbers, Model No. HF-230 that are currently servicing the Building. The replacement scrubbers for Building 54 will be exhausted to a common stack, which will be installed at the same height of 65 +/- feet of the existing stacks.

Scrubber F62S02 will be replaced by another Harrington Model No. ECH 66-9PBS horizontal cross flow scrubber rated for 17,000 scfm.

By these replacement activities Harris Semiconductor hopes to maximize the use of higher capacity and more effective control systems in the areas of highest demand.

Information on the existing scrubber systems at Buildings 54 and 62 is provided in Attachment I and information on the replacement scrubber systems is provided in Attachment II.

The replacement scrubbers for Building 54 will be renumbered F54S02 for the more northerly positioned and F54S03 for the southerly positioned scrubber. The replacement scrubbers for Building 62 will keep the same number. The current exhaust requirements for the operations at Buildings 54 and 62 can be handled by the proposed scrubber scheme.

If the Department has no objection, we will proceed with the course of action described above with completion scheduled by the end of May. If you have any questions or require any additional information, please contact me at (407) 729-5301.

Sincerely,

Constantine Triantafyllidis

Constantine Triantafyllidis, REP
Environmental Engineer

cc: B. Mitchell, Tallahassee
C. Collins, Orlando
K. Smith
R. Cappadona