Florida Department of Environmental Regulation

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

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

June 15, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kent Smith
Environmental Manager
Harris Semiconductor
P. O. Box 883
Melbourne, Florida 32902-0883

Dear Mr. Smith:

Re: Amendment to Construction Permit: AC 05-147321
Harris Semiconductor: Building 54

The Department has reviewed Ms. Nancy Baldisserotto's letter dated May 21, 1990, and received May 24, 1990. The purpose of the letter was to notify the Department of your intent to replace the existing scrubbers (F654S01 & F54S02) servicing Building 54 with an existing scrubber from Building 63 (F63S01). The Department acknowledges the notification with the following conditions:

- The scrubber system's efficiency shall be established for VOC/Solvents using EPA Method 25A pursuant to F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A. Other test methods may be used with prior written Departmental approval pursuant to F.A.C. Rule 17-2.700(3).

- The potential VOC/Solvent emissions shall be calculated using the results (actual emissions) from the efficiency test and prorated to 8760 hrs/hr. The result shall then be compared with the current permitted allowable emission limit for the building/source to determine if any permitting action is necessary.

- The Department's Central District office shall be notified in writing 15 days prior to conducting tests.

- The results of the tests shall be submitted to the Department's Central District office within 45 days after the last test run is completed.

Attachment to be Incorporated:

- Ms. Nancy Baldisserotto's letter with attachments received May 24, 1990.

This letter must be attached to your air construction permit, AC 05-147321, and shall become a part of the permit.

Sincerely,

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

SS/BM/plm

Attachment

c: C. Collins, Central Dist.
N. Baldisserotto, HS

ATTACHMENTS AVAILABLE UPON REQUEST

HARRIS SEMICONDUCTOR
HARRIS · RCA · GE · INTERSIL

RECEIVED
MAY 25 1990
DER-BAQM

May 21, 1990

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 no. AC 05-147321
Building 54 Consolidated Air Permit

Dear Mr. Fancy:

By this letter, Harris Semiconductor is providing the Department with notice of the replacement of scrubber nos. F54S01 and F54S02 with scrubber no. F63S01.

Scrubber no. F63S01 is a Beverly Pacific model CB-60 horizontal cross flow scrubber rated for 50,000 cfm of air flow. Notification of the deactivation of this system was submitted to the department on April 7, 1990 (see attachment I.) The scrubber will be relocated to the northwest grounds of building 54 and will replace the two 20,000 cfm rated Harrison scrubbers currently servicing the west half of the building (see attachment II for scrubber system information.) The two Harrison scrubbers exhibit water carry-over problems that the manufacturers' representatives and our engineers have been unable to resolve.

Because the Beverly Pacific scrubber has a greater capacity than scrubbers F54S01 and F54S02 combined, it is anticipated that the scrubber will function better than the present systems.

If the Department has no objection, we will proceed with the course of action described above with completion by the end of June. If you have any questions, please feel free to call me at (407) 729-4061.

Sincerely,

Nancy Baldisserotto

Nancy Baldisserotto
Senior Environmental Engineer

cc: B. Mitchell, Tallahassee
C. Collins, Orlando

ATTACHMENT I.

HARRIS SEMICONDUCTOR

April 7, 1990

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 No. AC 05-168460
Building 63 Consolidated Air Permit

Dear Mr. Fancy:

By this letter, Harris Semiconductor is providing the Department with notice of the phase-out of one of our wafer fabrication areas. Prior to January of 1990, one of the primary processes occurring in Building 63 was wafer fabrication. The VHSIC wafer fabrication area employed a series of manufacturing procedures that utilized a variety of manufacturing equipment and chemicals in order to produce the desired product. During the late months of 1989, the area was shut down, and wafer fabrication in this building was discontinued. Exhausted Equipment removed included aligners, developers, coaters, furnaces, wet stations, burn boxes, chemical and gas cabinets, vacuum pumps, and chemical drains.

The two scrubbers that handled equipment exhaust from Building 63's wafer fab were F63S01 and F63S02. The systems are located on the east side of the building at ground level. F63S01 provided exhaust and pollution control for acid exhaust drawn from the equipment in the wafer fab and chemical mix room, while F63S02 provided solvent exhaust for the fab, the chemical mix room, and one of the assembly areas.

Prior to the phase-out of the Building 63 fab, equipment requiring approximately 27,000 cfm of exhaust was ducted to scrubber nos. F63S01 and F63S02.

Scrubber no. F63S02 is a Beverly Pacific 10,000 scfm vertical counter-current scrubber. The system has adequate capacity to handle the remaining equipment, which requires only 3,000 cfm of exhaust.

If the Department has no objection, we will be deactivating scrubber no. F63S01 sometime this month. If you have any questions, please give me a call at (407)729-4061.

Sincerely,

Nancy Baldisserotto
Senior Environmental Engineer
Harris Semiconductor

cc: B. Mitchell
C. Collins

ATTACHMENT II.

HARRIS SEMICONDUCTOR -- AIR PERMIT INFORMATION

CURRENT PERMIT

BUILDING: 54
PERMIT NUMBER: AO 05-65408
PERMIT TYPE : OPERATING

DATE ISSUED : 05/03/83
RENEWAL DATE: 03/03/88
DATE EXPIRES: 05/02/88

AREA SERVED:
PROCESS DESCRIPTION: WEST MODULE DUAL SCRUBBERS

PERMIT LIMITS

VOL. RATE (SCFM): 20,000
ACID MIST (LB/HR): 0.058
SOLVENTS (LB/HR): 0.0543
VOCS (LB/HR): 0.0969
OPER. (HRS/YEAR): 6336

SPECIFIC CONDITIONS

ANNUAL OPERATING REPORT : 03/01
NOTIFICATION OF VE TEST : 10/30
ANNUAL VIS EMISSION TEST: 11/09

EQUIPMENT INFORMATION

MANUFACTURER : HARRISON
HARRIS ID NUMBER : F54S01
VOLUME FLOW RATE (CFM): 20,000
RECIRCULATION RATE (GPM): 95
MAKEUP WATER RATE (GPM): 9.0

MODEL NUMBER : HF-200
STACK HEIGHT (FT):
STACK DIAMETER (IN):
STACK VELOCITY (FPM):
DUCT MATERIAL :

PERMIT HISTORY

PERMIT NUMBER:
DATE EXPIRED :

PERMIT NUMBER:
DATE EXPIRED :

PERMIT NUMBER:
DATE EXPIRED :

CHEMICALS LISTED IN PERMIT

CHEMICALS	EMISSIONS (lbs/hr)	COLLECTION EFFICIENCY
HYDROFLUORIC ACID	0.045	NOT SPEC.
SULFURIC ACID	0.286	NOT SPEC.
HYDROGEN PEROXIDE	0.026	NOT SPEC.
HYDROCHLORIC ACID	0.012	NOT SPEC.
NITRIC ACID	0.007	NOT SPEC.
1,1,1 TRICHLOROETHANE	0.0415	NOT SPEC.
XYLENE	0.0554	NOT SPEC.
IPA	0.0106	NOT SPEC.
METHANOL	0.0436	NOT SPEC.

:

SCRUBBER INFORMATION

HARRIS ID # : F54S02
MANUFACTURER : HARRISON MODEL NUMBER : HF-200
SERIAL NUMBER: N/A MATERIAL : POLYPRO
DESCRIPTION : HORIZONTAL CROSS-FLOW, PLASTIC SADDLE PACKING, LIQUID DISTRIBUTION THROUGH MAIN HEADER, NO SPRAY NOZZLES

DESIGN DATA
VOLUME FLOW RATE (CFM): 20,000 PRESSURE DROP (IN):
RECIRCULATION RATE (GPM): 95 MAKE UP RATE (GPM): 9.0

ACTUAL DATA
VOLUME FLOW RATE (CFM): PRESSURE DROP (IN): N/E DATE: 06/03/87
RECIRCULATION RATE (GPM): 30 MAKE UP RATE (GPM): 5.0 DATE: "

RECIRCULATION PUMP INFORMATION

MANUFACTURER : FRANKLIN ELECTRIC MODEL NUMBER : 1303012101
SERIAL NUMBER: N/A HP : 1/2 RPM : 3450
BRKR LOCATION: NEXT TO UNIT FED FROM MCC : P

FAN INFORMATION

HARRIS ID # : F54E02
MANUFACTURER : HARTZELL MODEL NUMBER: 41-40-FP3
SERIAL NUMBER: N/A MATERIAL : FIBERGLASS
DESCRIPTION : CENTRIFUGAL BLOWER, BACKWARD CURVED BLADES

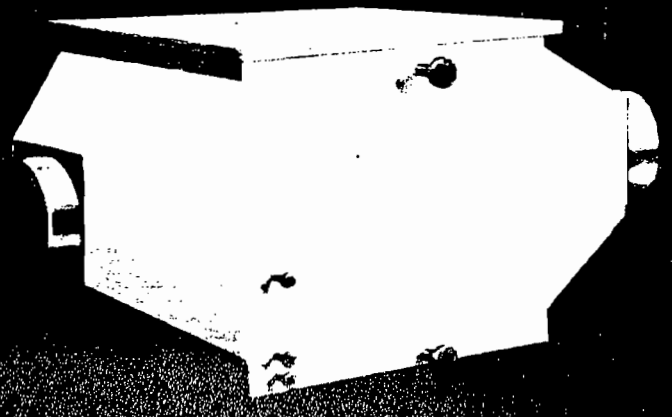
DESIGN DATA
VOLUME FLOW RATE (CFM): 20,000 STATIC PRESS (IN): 3.3

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

FAN MOTOR INFORMATION

MANUFACTURER : MODEL NUMBER :
SERIAL NUMBER: HP : 30 RPM : 1725
BRKR LOCATION: NEXT TO UNIT FED FROM MCC : U

Plastic Packed Scrubbers



THE HARRISON SYSTEM

Harrison is a prime designer and producer of complete plastic exhaust systems, custom engineered scrubbing systems, as well as duct and fittings, tanks, and hoods. As a result of this capability and experience, design and manufacture of standard, pre-engineered fume scrubbers is a natural extension.

MATERIALS

Self-supporting or fiberglass armored PVC and Polypropylene, fiberglass armored Kynar, and solid fiberglass construction offers a wide range of resistance to acids, alkalis, solvents, and other corrosives at operating temperatures to approximately 250°F. Harrison systems do not use any metal in contact with the process stream.

PRE-ENGINEERING

Pre-engineered design reduces cost by eliminating the necessity to re-invent each item ordered. It results in more reliable service thru improved workmanship achieved by repetitive production control, and speeds quotations and approval drawings because costs and designs are immediately available. In addition to significant savings in approval and order time, Harrison reduces delivery time by stocking scrubber components including packing, support grids, distributor plates, nozzles, duct reducers, and sheet stock.

SCRUBBER CONFIGURATION

Most fume removal applications can be served by the two scrubber designs shown in this catalog. Vertical Counter Current style directs liquid down vertically, and unwanted fumes upward in the opposite direction. Horizontal Cross Flow unit directs liquid down vertically, but unwanted fumes are driven horizontally at 90° to the liquid. In both designs, liquid and fumes are inter-mixed in the packed bed section of the scrubber where fumes are removed by chemical reaction or water solubility. Scrubber shape does not affect performance. Horizontal design presents a low profile and is suitable where head room is limited. Verticals require more head room, but use only minimum floor space.

SCRUBBER DESIGN AND OPERATION

Highest scrubber efficiency (volumetric % of contaminate removed) is obtained by having the proper amount of contact surface area (packing) wetted by sufficient liquid (recirculated liquid rate) for an optimum residence time (packing depth) to allow unwanted fumes to take a treacherous path thru the wetted packing to permit their maximum removal from the carrier air stream by chemical reaction or water solubility. Air stream resistance encountered in the packing (static pressure loss) is a function of air velocity, cross-sectional packing area, and packing depth. Harrison scrubbers utilize proven packing depth to achieve efficiencies approaching 99+%, when operated within recommendations.

LIQUID DISTRIBUTION AND MIST ELIMINATION

Simple liquid distribution is achieved thru a main header pipe feeding perforated laterals, without use of troublesome spray nozzles. Nozzles are subject to plugging, and produce a difficult-to-remove atomized mist carryover. In the Harrison design, any large droplets of liquid caught in the upward moving air stream are easily and efficiently removed by a short bed of dry packing located above the liquid distributor.

STATIC PRESSURE LOSS

Use of high-surface-area, low-pressure-drop plastic saddles in a balanced design result in low static pressure loss of only 0.4 inches H_2O (w.g.) per foot of packed depth in Vertical Counter Current scrubbers, and 0.33 in Horizontal Cross Flow units. At the same time, sufficient irrigation rates constantly keep saddles clear of potential sludge buildup. Thereby, continuous, non-clogging operation at a proper rate of intermixing turbulence between liquid and fumes is achieved for 99+% efficiency.

LIQUID SUMP OPERATION

Harrison scrubbers employ an integral liquid recirculating sump which reduces amount of liquid consumption required by 90 to 95% in most applications. Therefore, considerably less effluent must be handled and treated. The sump reservoir is contained within the scrubber itself. Harrison recommends optimum rate of effluent removal. When effluent is acidic only, additional liquid conservation can be obtained with either scrubber design with the simple optional recovery system shown with the vertical scrubber drawing on page 4. If central treating facilities exist, no sump, recirculation, or independent recovery is needed. In this case, treated liquid would be directed over the packing in a single pass, then treated, then returned to the scrubber, etc. In both instances where effluent is treated, liquid consumption would be reduced to only that amount lost by evaporation.

Harrison

Box 184 Aurora Ohio 44202/216-562-9545

:

SCRUBBER INFORMATION

HARRIS ID # : F63S01
MANUFACTURER : BEVERLY PACIFIC MODEL NUMBER : CB-60
SERIAL NUMBER: F-600 MATERIAL : FIBERGLASS
DESCRIPTION : HORIZONTAL CROSS FLOW, NON-CLOGGING PVC SPRAY NOZZLES, 2" POLYPROPYLENE PACKING, PVC MIST ELIMINATOR DWG. F-600-6

DESIGN DATA
VOLUME FLOW RATE (CFM): 50,000 PRESSURE DROP (IN):
RECIRCULATION RATE (GPM): 225 MAKE UP RATE (GPM): 22

ACTUAL DATA
VOLUME FLOW RATE (CFM): PRESSURE DROP (IN): N/E DATE: 87-06-03
RECIRCULATION RATE (GPM): 90 MAKE UP RATE (GPM): 7.5 DATE: "

RECIRCULATION PUMP INFORMATION

MANUFACTURER : FILTER PUMP IND MODEL NUMBER : 36E 188-105
SERIAL NUMBER: F 1280 HP : 3 RPM : 3450
BRKR LOCATION: NEXT TO UNIT FED FROM MCC : 634

FAN INFORMATION

HARRIS ID # :
MANUFACTURER : BEVERLY PACIFIC MODEL NUMBER: CB-60
SERIAL NUMBER: F-600 MATERIAL : FIBERGLASS
DESCRIPTION : CENTRIFUGAL TYPE, CLASS II, BACKWARD CURVED BLADES, DWG. F-600-6

DESIGN DATA
VOLUME FLOW RATE (CFM): 50,000 STATIC PRESS (IN): 5.0

ACTUAL DATA SPEED (RPM): 632 DATE: SUBMITTAL
VOLUME FLOW RATE (CFM): STATIC PRESS (IN): DATE:

FAN MOTOR INFORMATION

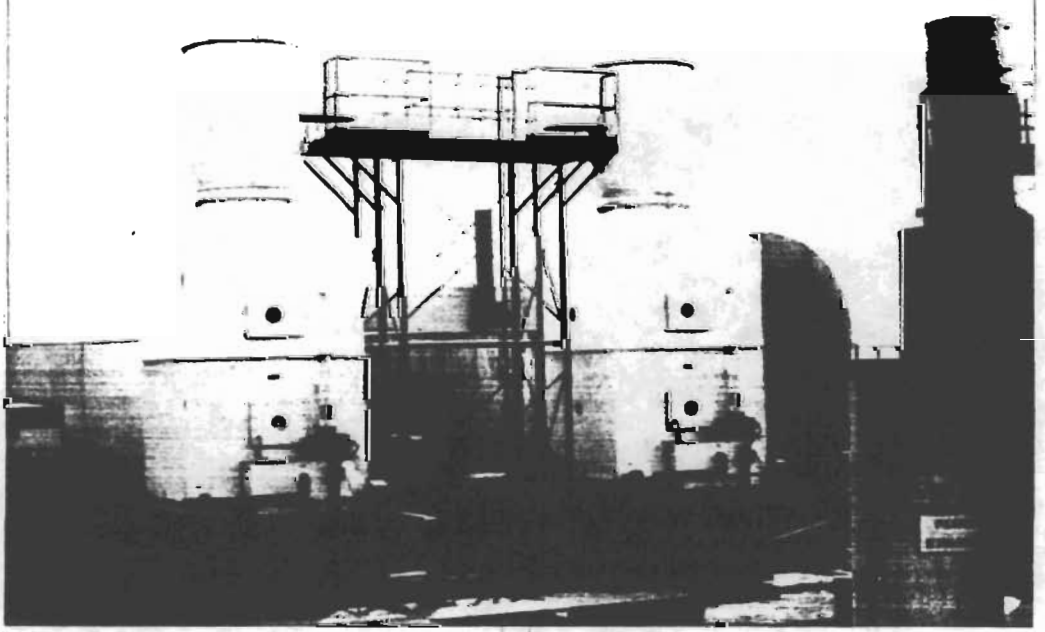
MANUFACTURER : MODEL NUMBER :
SERIAL NUMBER: HP : 75 RPM :
BRKR LOCATION: NEXT TO UNIT FED FROM MCC : 634

Attachment :

[redacted]

BEVERLY PACIFIC CORPORATION

SCRUBBERS

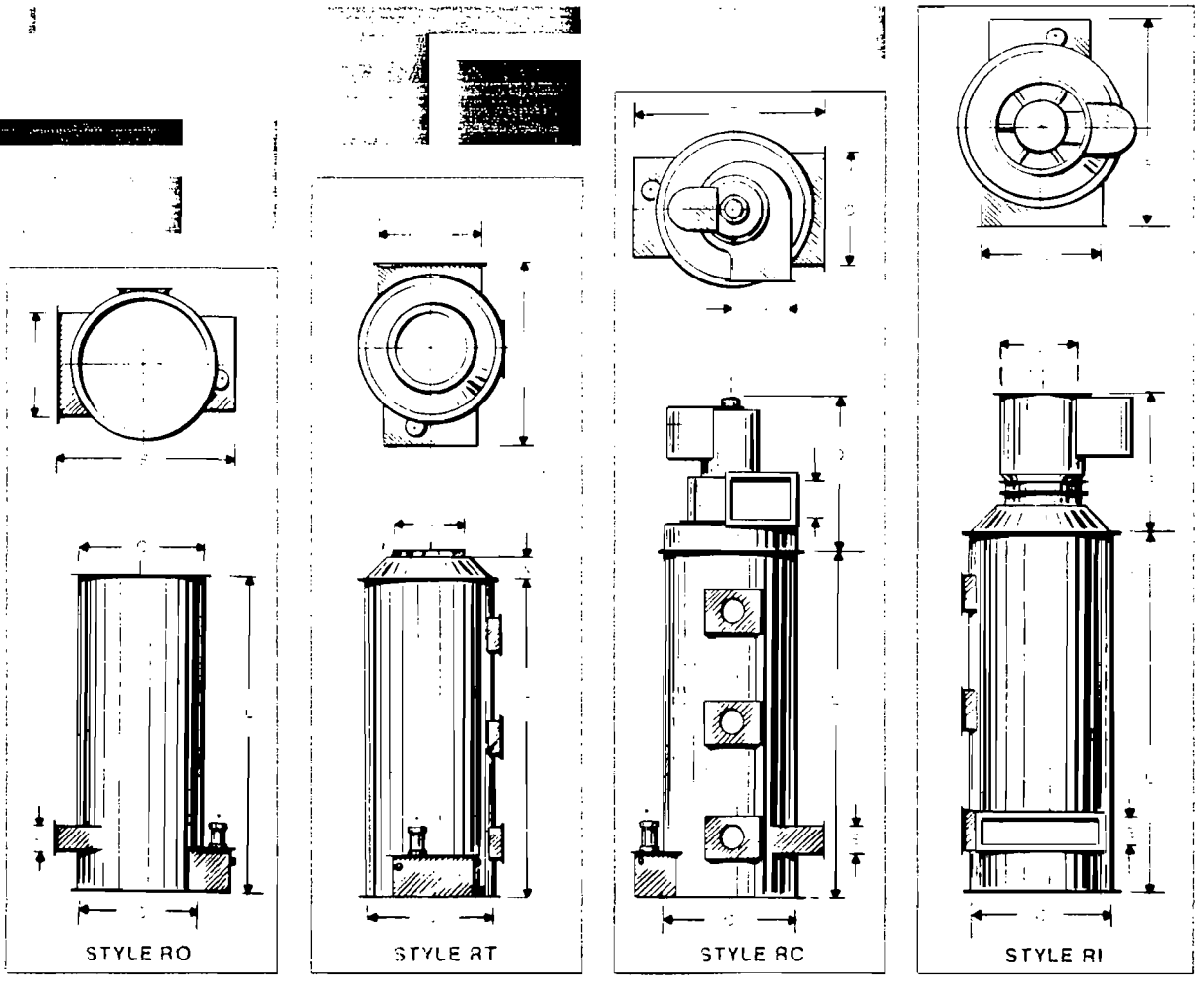


FIBERGLASS REINFORCED PLASTIC

PACKED SCRUBBER DIMENSIONAL CHART

MODEL NUMBERS
DIMENSIONS IN INCHES

	PS-2	PS-4	PS-6	PS-8	PS-12	PS-18	PS-24	PS-30	PS-40	PS-50
A	78	82	84	94	101	108	112	114	118	118
B	24	36	42	48	60	72	84	96	108	120
C	28	40	48	58	72	84	96	108	120	136
D	22	34	40	46	58	70	80	92	104	116
E	6	8	10	11	12	16	18	20	24	24
F	46	58	66	76	90	102	114	126	138	154
G	42	54	60	66	78	90	102	114	126	138
H	13⅜	16⅜	22½	26¼	29½	35¼	39	47¼	52⅜	63⅞
I	10⅜	12⅞	17	20½	22¾	27	30	37½	40¾	49¾
J	18	22	28	34	38	45	50	62	66	80
K	6	8	10	10	12	16	19	20	24	24
L	84	87	89	104	112	118	122	124	128	128
M	64	64	70	77	89	102	102	102	114	114
N	35	49	55	62	76	88	103	116	128	142
O	38	52	58	65	79	91	106	119	131	145
P	14	16	22	26	30	36	42	50	54	66
Q	45	50	61	64	68	72	78	86	93	103
R	35	44	55	65	75	85	94	108	120	141
S	46	52	59	69	72	79	82	97	100	110
T	36	48	54	60	72	84	96	108	120	132
WHEEL DIA.	12¼	15	20	24½	27	33	36½	44½	49	60
CFM x 1000	1-2	2-4	4-6	6-8	8-12	12-18	18-24	24-30	30-40	40-50
RECIRC. GPM	7	15	25	35	45	75	105	135	175	225
MAKE-UP GPM	0.7	1.5	2.0	3.0	4.0	7.0	10.0	13.0	17.0	22.0
HT OP. WT.	388	745	1110	1570	2690	4085	5670	7595	11790	16040
HT SHIP WT.	220	385	550	770	1210	1925	2750	3795	5390	7040
VT OP. WT.	318	660	1060	1500	2630	3910	5470	7400	11650	15800
VT SHIP WT.	150	300	500	700	1150	1750	2550	3600	5250	6800

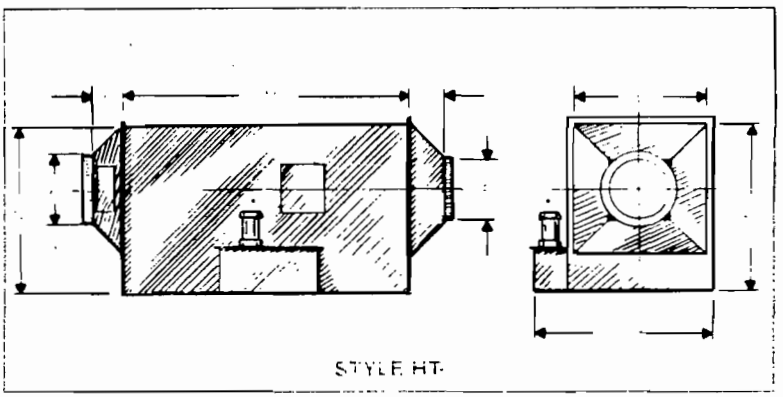


STYLE RO

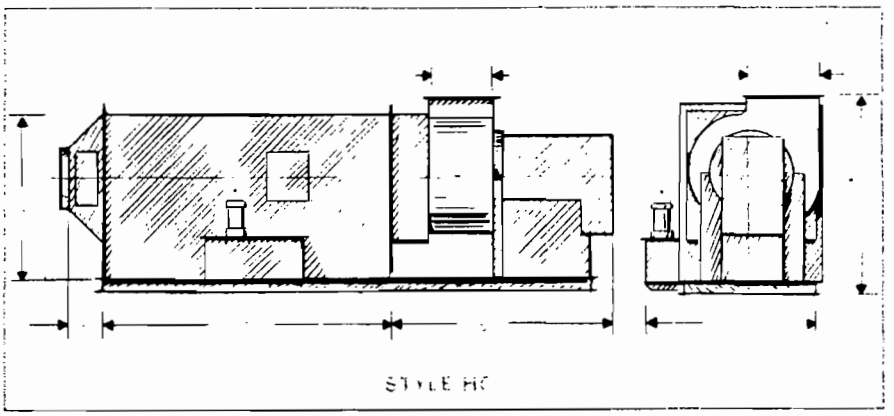
STYLE RT

STYLE RC

STYLE RI

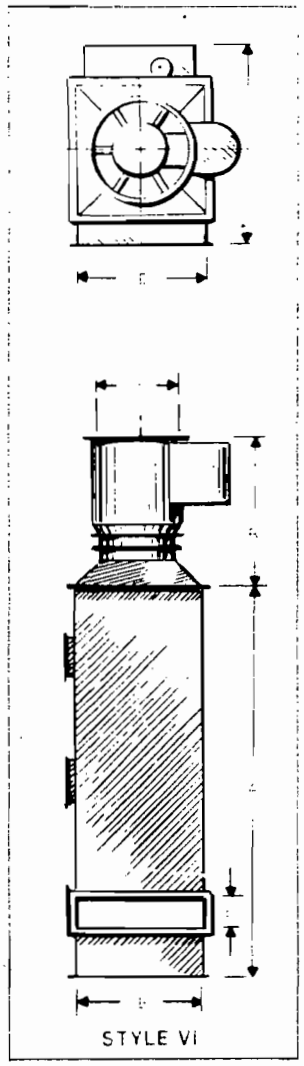


STYLE HT

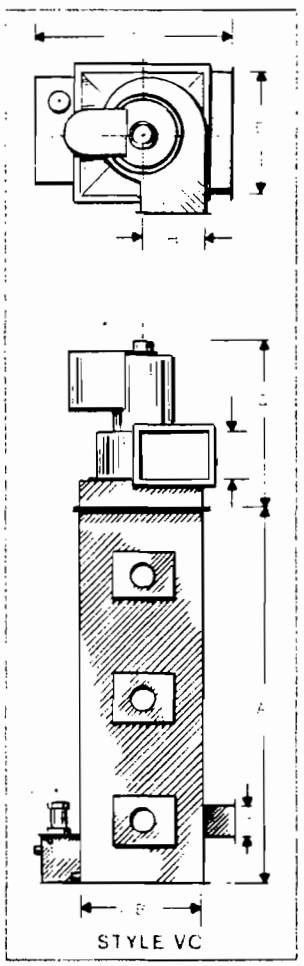


STYLE HC

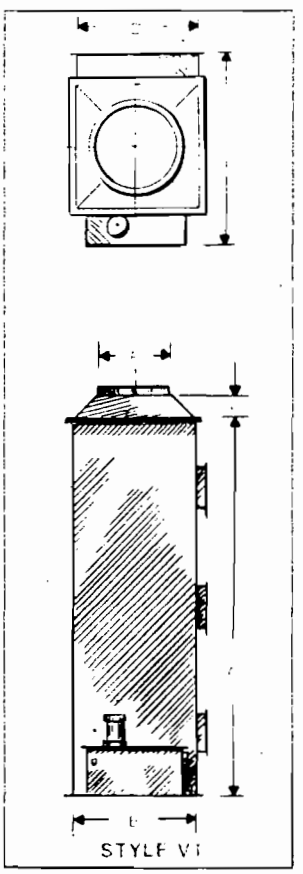
*May require one or more pumps.



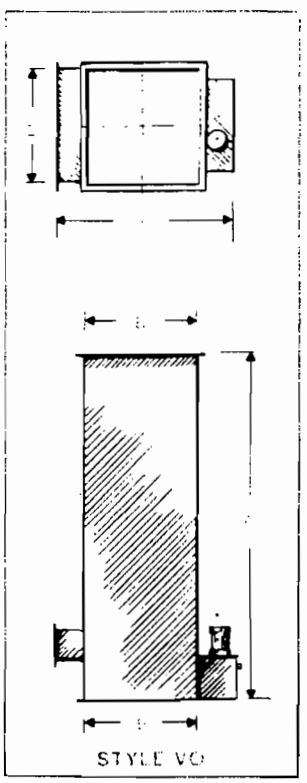
STYLE VI



STYLE VC



STYLE VT



STYLE VO

COMPUTERIZED PACKING MEDIA SELECTION

The most common mistake made by scrubber manufacturers today is the use of only one type of packing media for all types of contaminant removal. Beverly Pacific Corporation scrubbers are designed with a computer program assist to determine the most beneficial packing media to achieve high removal efficiency coupled with low pressure drop providing the user with the ultimate in lower operating costs consistent with the contaminant removal requirements.

SCRUBBER CONFIGURATIONS

Beverly Pacific Corporation manufactures scrubbers of both crossflow and counter-current configurations.

The CROSSFLOW design is of low profile, rectangular shape wherein the contaminated air stream moves horizontally through the packing media and is scrubbed by the liquid flowing downward through the packing. This configuration is ideal for roof-top mounting and is available in ten (10) standard sizes with or without integral centrifugal fans.

The COUNTER-CURRENT design is offered in two (2) configurations, round or rectangular. While the round tower unit is the most economical in initial cost, the rectangular tower unit permits larger CFM volume using the same amount of floor space. In the counter-current design, the contaminated airstream flows up through the packing media and is scrubbed by the liquid flowing downward. The round and rectangular tower units are each offered in ten (10) sizes and are available with or without integral inline or centrifugal fans.

SCRUBBER MAKE-UP WATER CONSUMPTION

Beverly Pacific's scrubber design is based on a scrubbing liquid recirculation rate of 5 GPM per 1000 CFM of contaminated air. Of that 5 GPM, losses due to absorption and/or evaporation range from 0.2 GPM to 0.6 GPM, depending on inlet gas temperature and gas stream dust load.

ENTRAINMENT SEPARATION

The unique design of Beverly Pacific's mist eliminator section provides up to 99+% moisture particle entrapment at a pressure drop of approximately 0.5" W.G.

CONSTRUCTION

The structural housings are fabricated of Fiberglass Reinforced Plastic (FRP) materials which provide structural strength, are corrosion-resistant and light in weight. Resin selection depends on the corrosive element involved. Resins can also be of fire-retardant grade if required. Our construction technique employs the use of female molds resulting in an extremely smooth, attractive, gelcoated exterior surface (note the upper right photo on the facing page). Beverly Pacific Corporation's construction methods meet or exceed the requirements of NBS-PS 15-69 for custom contact-molded reinforced polyester chemical resistant process equipment.

OPTIONAL EQUIPMENT, FITTINGS AND ACCESSORIES

FITTINGS, such as drain, overflow, make-up water, access doors, etc. can usually be located to facilitate installation and maintenance.

RECIRCULATION RESERVOIR(S) are normally an integral part of the scrubber but, if required, can be furnished for remote installation.

RECIRCULATION PUMP(S) can be located within the built-in reservoir, but can also be installed in remote reservoir units.

SPECIAL RESERVOIR(S) can be furnished in applications where it is necessary to remove non-soluble particulate accumulation to prevent pump damage and minimize maintenance.

pH CONTROL SENSING/METERING equipment can be provided where contaminate absorption requires the addition of acid or caustic to the recirculated scrubbing liquid.

Florida Department of Environmental Regulation
Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400
Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

June 15, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kent Smith
Environmental Manager
Harris Semiconductor
P. O. Box 883
Melbourne, Florida 32902-0883

Dear Mr. Smith:

Re: Amendment to Construction Permit: AC 05-157786
Harris Semiconductor: Building 51

The Department has reviewed Ms. Nancy Baldisserotto's letter received on May 24, 1990. The purpose of the letter was to notify the Department of your intent to deactivate an existing scrubber system (F51S01) and exhaust the remaining equipment it serviced to another existing wet scrubber system (F51S03). The Department acknowledges the notification with the following conditions:

- The scrubber system's (F51S03) efficiency shall be established for VOC/Solvents using EPA Method 25A pursuant to F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A. Other test methods may be used with prior written Departmental approval pursuant to F.A.C. Rule 17-2.700(3).

- The maximum potential VOC/Solvent emissions shall be calculated using the results (actual emissions) from the efficiency test and prorated to 8760 hrs/yr. This value shall then be compared to the current allowable emission limit for the building/source to determine if any permitting action is necessary.

- The Department's Central District office shall be notified in writing 15 days prior to conducting tests.

- The results of the tests shall be submitted to the Department's Central District office within 45 days after the last test run is completed.

Attachment to be Incorporated:

- Ms. Nancy Baldisserotto's letter received May 24, 1990.

This letter must be attached to your air construction permit, AC 05-157786, and shall become a part of the permit.

Sincerely,

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

SS/BM/plm

Attachment

c: C. Collins, Central Dist.
N. Baldisserotto, HS

ATTACHMENTS AVAILABLE UPON REQUEST

HARRIS SEMICONDUCTOR
HARRIS · RCA · GE · INTERSIL

RECEIVED
MAY 25 1990
DER - BAQM

May 22, 1990

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 no. AC 05-157786
Building 51 Consolidated Air Permit

Dear Mr. Fancy:

By this letter, Harris Semiconductor is providing the Department with notice of the consolidation of manufacturing activity in the building 51 wafer fab, and the resulting deactivation of one of the scrubber systems servicing the area. During the late months of 1989, various pieces of manufacturing equipment were either deactivated and removed from the east module, or relocated to the west module. The changes have resulted in reduced exhaust demand on the scrubbers servicing the area. Attachment I is a list of the remaining equipment and associated exhaust demand on the scrubbers.

Scrubber no. F51S03 is a Duall Industry model F-101 four-stage horizontal cross-flow scrubber rated for 24,000 cfm of exhaust. The system has adequate capacity to handle the equipment currently exhausted to scrubber F51S01, which now requires only 1750 cfm of exhaust. (See attachment II for additional scrubber information.)

If the Department has no objection, we will be deactivating scrubber no. F51S01 sometime next month, and exhaust the remaining equipment to scrubber no. F51S03. If you have any questions, please give me a call at (407) 729-4061.

Sincerely,

Nancy Baldisserotto

Nancy Baldisserotto
Senior Environmental Engineer

cc: B. Mitchell, Tallahassee
C. Collins, Orlando

ATTACHMENT I.

Analog East Exhaust
aneastex

Env.	I.D.	Description	CFM
F51S01			
	666	6' Acid Station	750
	667	Ion Implant	600
	668	Furnace bank L	200
	669	Furnace bank M	200
	670	Gas cabinet	0
	671	Gas cabinet	0
		Total:	1750 CFM
F51S02			
	653	6' Solvent hood	1650
	650	Box wash	300
	762	6' Solvent clean	750
	616	Cup clean	1500
	607	NICR lift off	1000
		Vac Pump	25
		Vac Pump	25
		Vac Pump near SEM	25
		Laser Scribe	25
		Total =	5300 CFM
F51S03			
	643	6' Acid station	1650
	644	6' Acid station	750
	645	6' Acid station	750
	646	6' Acid station	750
	647	8' Resist acid station	1000
	622	Tube Clean	1500
	761	Acid	1000
	602	Drytech	160
	604	Acid	1100
	654	Furnace Bank A	375
	655	Furnace Bank B	375
	656	Furnace Bank C	375
	657	Furnace Bank D	375
	658	Furnace Bank E	375
	659	Furnace Bank F	375
	660	Furnace Bank G	375
	661	Furnace Bank H	375
	662	LPCVD J	375
		LPCVD K	375
		2" LN2 vent	0
	675	Gas Cabinet	125
	674	Gas Cabinet	125
	673	Gas Cabinet	125
	672	Gas Cabinet	125
		J bank Vacuum Pump	5
		Total =	12915 CFM

ATTACHMENT II.

SCRUBBER INFORMATION

HARRIS ID # : FS1S01
MANUFACTURER : TRI-MER CORP. MODEL NUMBER : F/W 3
SERIAL NUMBER: 7026 MATERIAL : PVC
DESCRIPTION : HORIZONTAL COUNTER-FLOW, MIST ELIMINATOR, POLYPRO FILTER PACK;DRAWING D1000-585 (6/80)

DESIGN DATA
VOLUME FLOW RATE (CFM): 9,500 PRESSURE DROP (IN):
RECIRCULATION RATE (GPM): 30 MAKE UP RATE (GPM): 3.0

ACTUAL DATA
VOLUME FLOW RATE (CFM): PRESSURE DROP (IN): N/E DATE: 6/3/87
RECIRCULATION RATE (GPM): N/E MAKE UP RATE (GPM): N/R DATE: "

RECIRCULATION PUMP INFORMATION

MANUFACTURER : FLOTEK MODEL NUMBER : C7P3-1194V
SERIAL NUMBER: 603887B801 HP : 1 RPM : 3450/2850
BRKR LOCATION: NEXT TO UNIT FED FROM MCC : IAC 76127

FAN INFORMATION

HARRIS ID # : FS1E13
MANUFACTURER : TRI-MER CORP. MODEL NUMBER: 24 UB
SERIAL NUMBER: 7026 MATERIAL : PVC
DESCRIPTION : CENTRIFUGAL BLOWER, BACKWARD INCLINED BLADES

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

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

FAN MOTOR INFORMATION

MANUFACTURER : LINCOLN MODEL NUMBER :
SERIAL NUMBER: HP : 15 RPM : 1750
BRKR LOCATION: NEXT TO UNIT FED FROM MCC : IAC 76127

SCRUBBER INFORMATION

HARRIS ID # : F51S02
MANUFACTURER : DUALL IND. MODEL NUMBER : F-101
SERIAL NUMBER: 4476 MATERIAL : PVC
DESCRIPTION : HORIZONTAL CROSS-FLOW, FOUR STAGE, MIST ELIMINATOR, SINGLE FILTER PACK, OPEN ORIFICE TYPE SPRAY NOZZLES

DESIGN DATA
VOLUME FLOW RATE (CFM): 10,000 PRESSURE DROP (IN): 2.0
RECIRCULATION RATE (GPM): 30 MAKE UP RATE (GPM): 1.5

ACTUAL DATA
VOLUME FLOW RATE (CFM): 8,200 PRESSURE DROP (IN): N/E DATE: 1/16/87
RECIRCULATION RATE (GPM): 12 MAKE UP RATE (GPM): N/E DATE: 6/3/87

RECIRCULATION PUMP INFORMATION
MANUFACTURER: GENERAL ELECT. MODEL NUMBER : 5K47SG976
SERIAL NUMBER: N/A HP : 2 RPM : 3450
BRKR LOCATION: FED FROM MCC :

FAN INFORMATION
HARRIS ID # : F51E18
MANUFACTURER : DUALL IND. MODEL NUMBER: 49
SERIAL NUMBER: 4476 MATERIAL : PVC
DESCRIPTION : CENTRIFUGAL BLOWER

DESIGN DATA
VOLUME FLOW RATE (CFM): 10,000 STATIC PRESS (IN):

ACTUAL DATA SPEED (RPM): DATE:
VOLUME FLOW RATE (CFM): 8,200 STATIC PRESS (IN): 4.3 DATE: 1/16/87

FAN MOTOR INFORMATION
MANUFACTURER : MODEL NUMBER :
SERIAL NUMBER: HP : 15 RPM : 1750
BRKR LOCATION: FED FROM MCC :

tachment :

SCRUBBER INFORMATION

HARRIS ID # : F51S03
MANUFACTURER : DUALL IND. MODEL NUMBER : F-101
SERIAL NUMBER: 4194 MATERIAL : PVC
DESCRIPTION : HORIZONTAL CROSS-FLOW, FOUR STAGE, MIST ELIMINATOR, SINGLE FILTER PACK, OPEN ORIFICE TYPE SPRAY NOZZLES

DESIGN DATA
VOLUME FLOW RATE (CFM): 24,000 PRESSURE DROP (IN): 2.0
RECIRCULATION RATE (GPM): 72 MAKE UP RATE (GPM): 4.0

ACTUAL DATA
VOLUME FLOW RATE (CFM): PRESSURE DROP (IN): N/E DATE: 6/3/87
RECIRCULATION RATE (GPM): N/E MAKE UP RATE (GPM): N/E DATE: "

RECIRCULATION PUMP INFORMATION

MANUFACTURER : LINCOLN MODEL NUMBER : 2509
SERIAL NUMBER: 1605666 3420 HP : 1.5 RPM : 3420
BRKR LOCATION: FED FROM MCC : #5

FAN INFORMATION

HARRIS ID # : F51E03
MANUFACTURER : TRI-MER CORP. MODEL NUMBER: 44 CW
SERIAL NUMBER: 5303 MATERIAL : PVC
DESCRIPTION : CENTRIFUGAL BLOWER, BACKWARD INCLINED BLADES

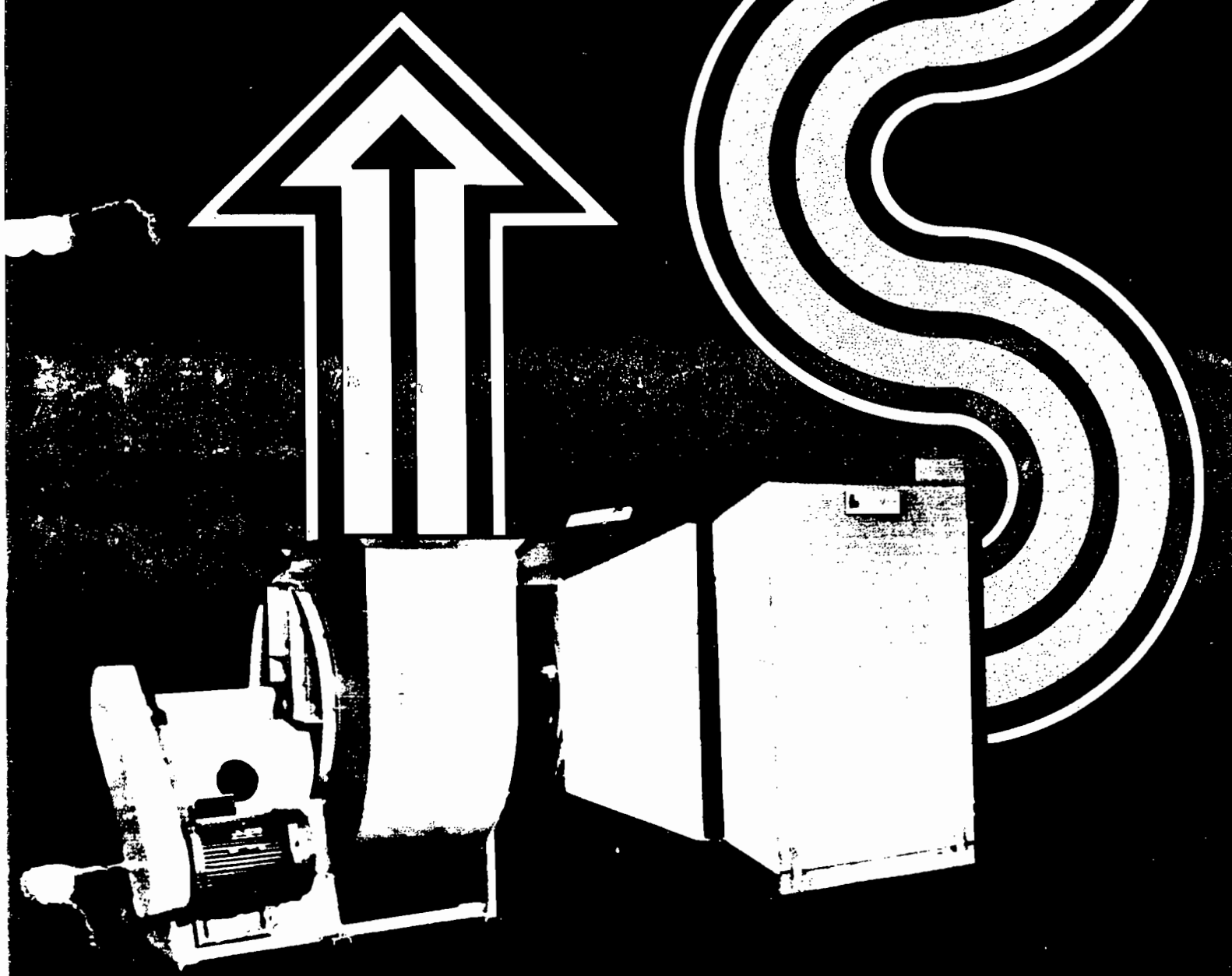
DESIGN DATA
VOLUME FLOW RATE (CFM): 30,000 STATIC PRESS (IN):

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

FAN MOTOR INFORMATION

MANUFACTURER : MODEL NUMBER :
SERIAL NUMBER: HP : 30 RPM : 1750
BRKR LOCATION: FED FROM MCC : #5

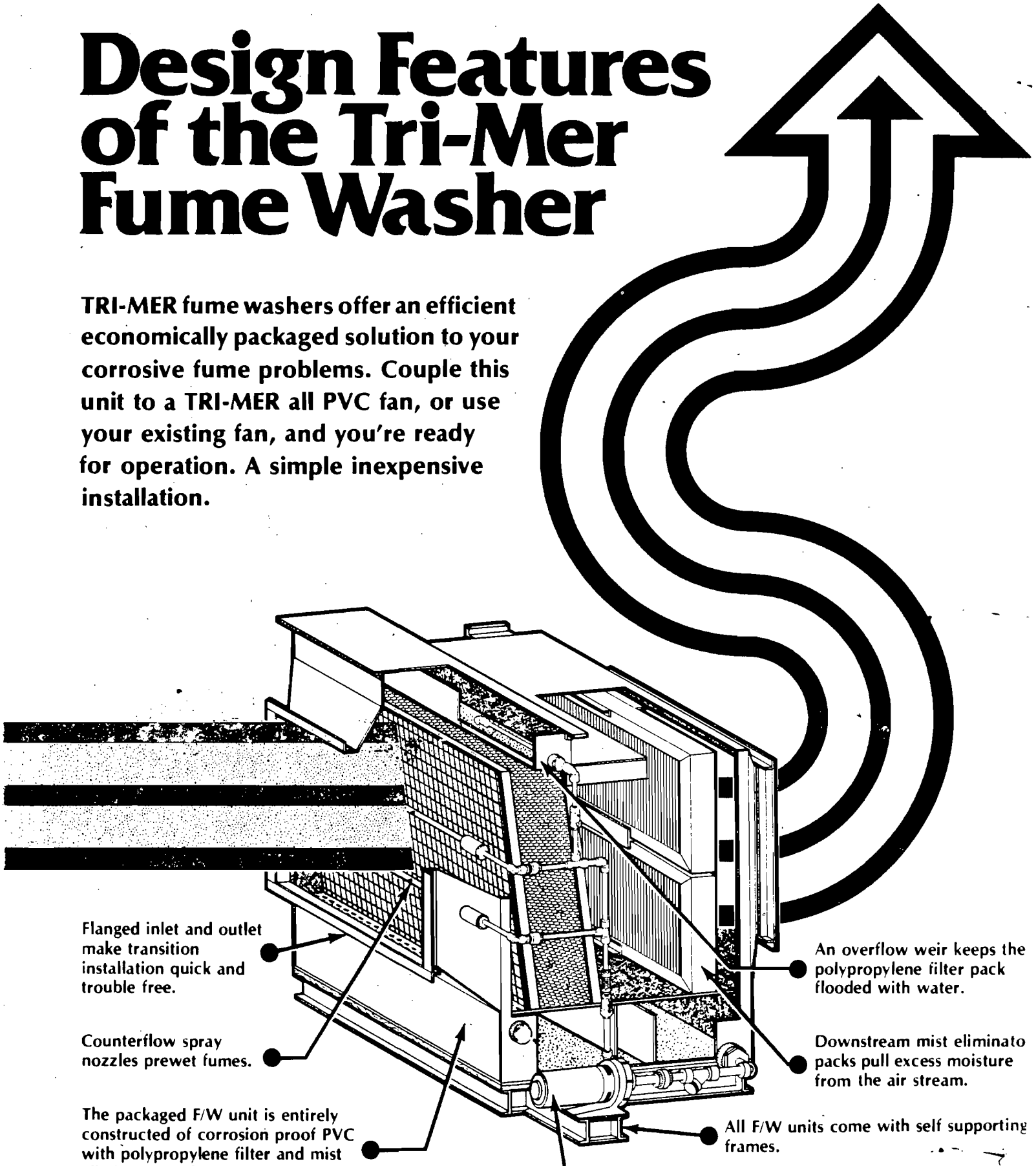
The Tri-Mer Fume Washer



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 eliminato 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.

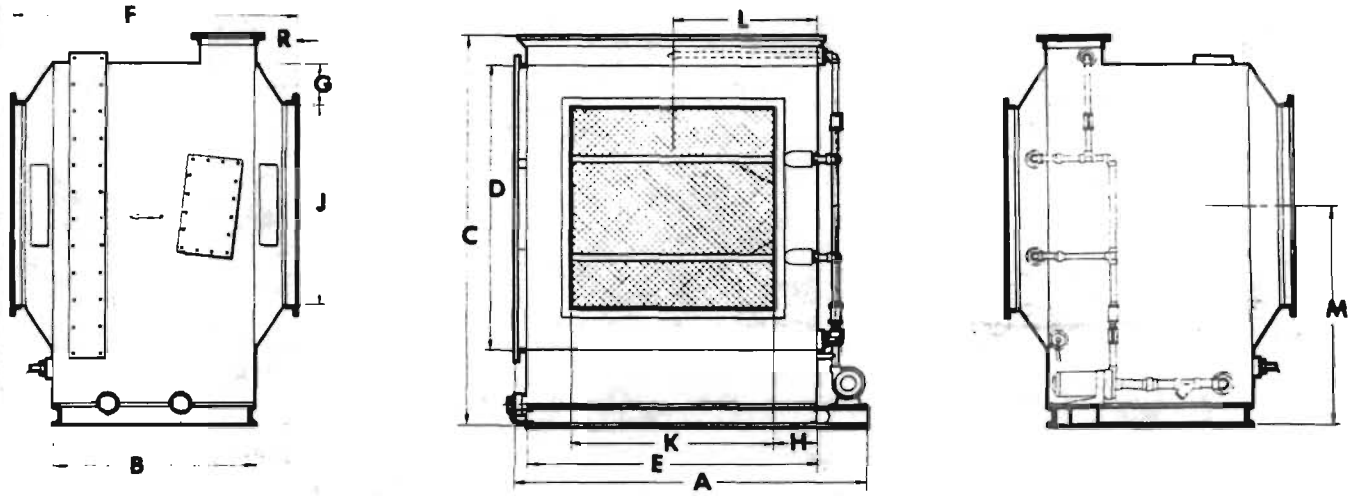
NOTE — Models F/W-10 through F/W-16 require remote recirculation tanks per manufacturers suggestion.

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

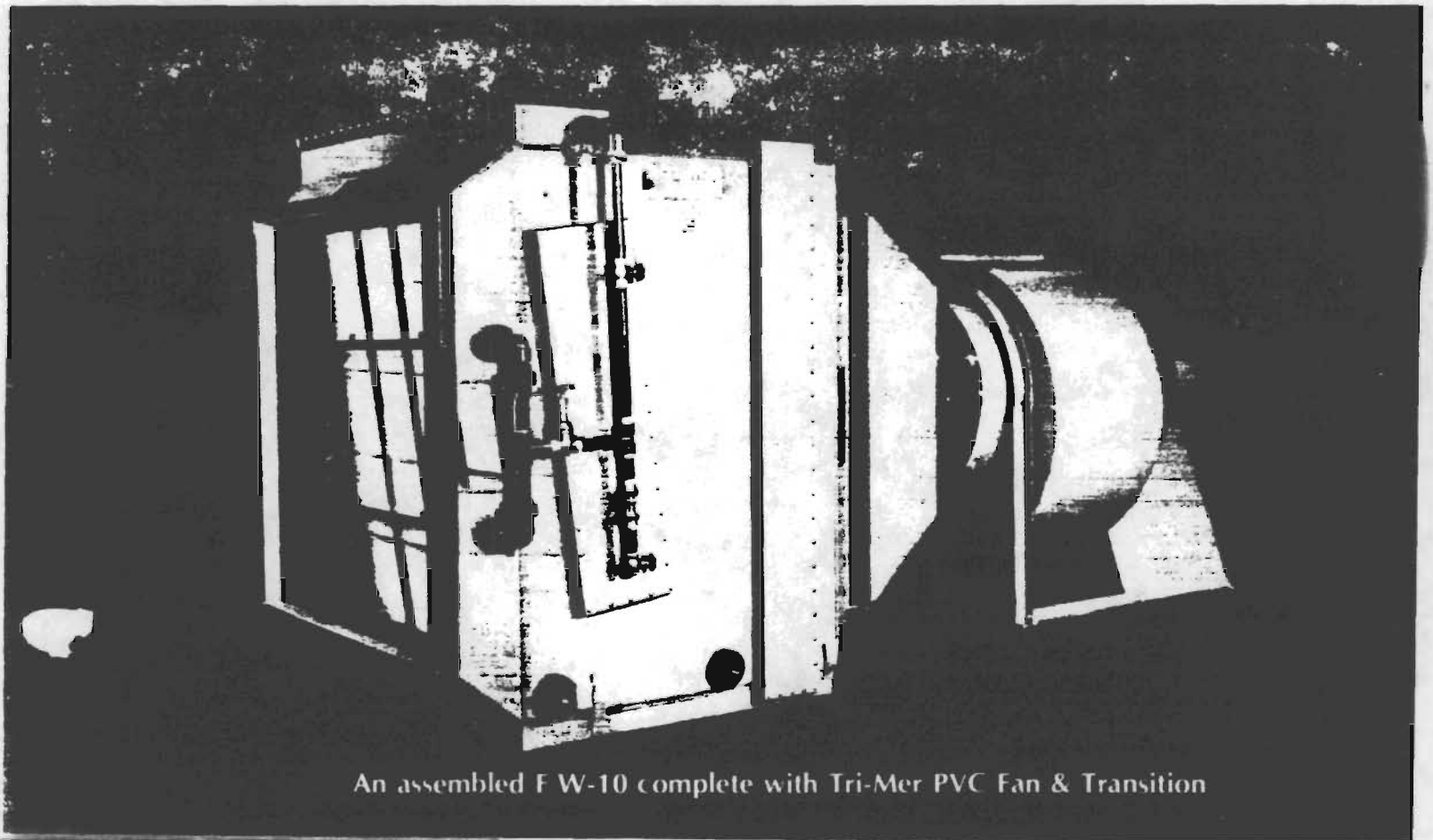
F W	A		B	C		D	E	F	G	H	J	K	L	M		R	CHANNEL	ANGLE	DRAIN	G P M	No. OF HEADERS	PIPE	CFM CAPACITY
1	3'-11½"	4'-4½"	3'-6"	4'-3"	5'-3"	3'-4"	3'-4"	4'-10"	6"	6"	28"	28"	1'-8"	2'-0¾"	3'-0¾"	8"	4"@5.4#	1½"x1½"x3/16"	3"	8	2	¾"	3,000 to 5,500
2	4'-3½"	4'-8½"	3'-10"	4'-6¾"	5'-6¾"	3'-8"	3'-4"	5'-2"	4½"	4½"	35"	35"	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"	6"	6"	37"	37"	2'-4½"	2'-7⅛"	3'-7⅛"	8"	4"@6.4#	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'-6"	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
16	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
18	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.



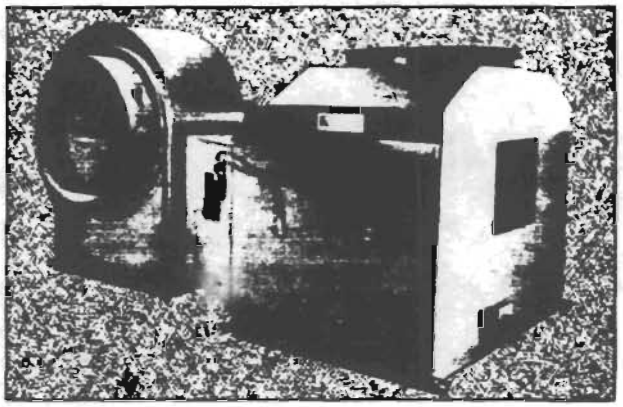
Typical three view drawing of units with integral recirculation tanks.



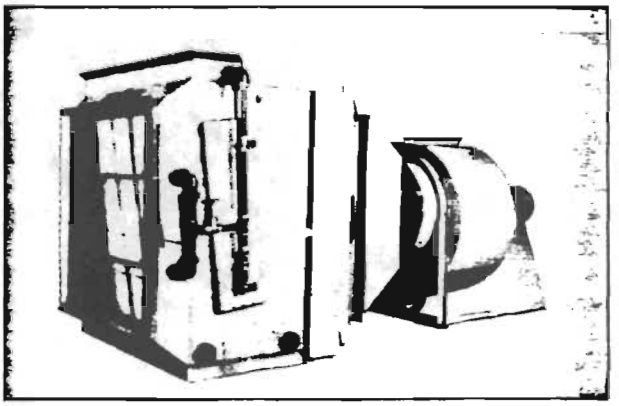
An assembled F W-10 complete with Tri-Mer PVC Fan & Transition

Other TRI-MER PVC Equipment

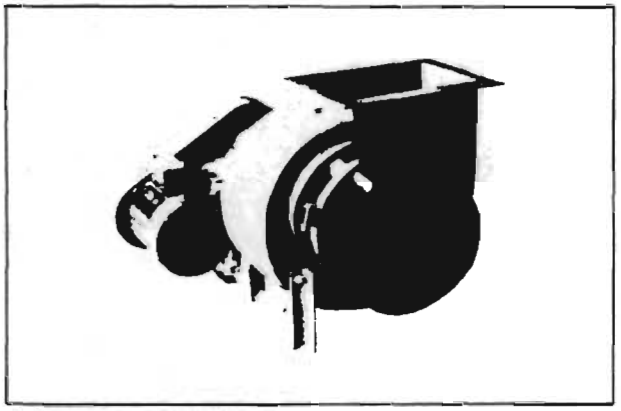
As long time specialists in designing corrosive fume control systems, TRI-MER offers a complete line of PVC air movers and associated equipment. This includes the patented fan/separator (fume scrubber), fume washers (crossflow scrubbers), PVC centrifugal fans, an *all PVC* stack fan, as well as PVC hoods and duct. Special fabrications such as consoles, tanks, and small plating lines are available.



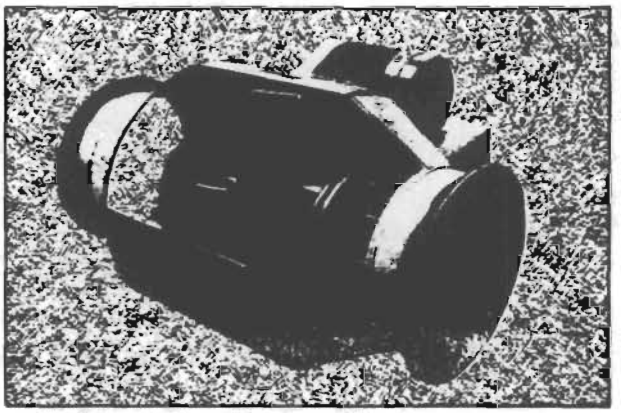
Fan/Separator



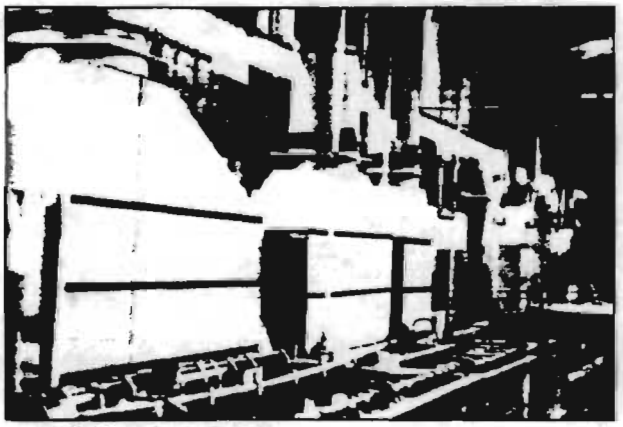
Fume/Washer (Crossflow Scrubber)



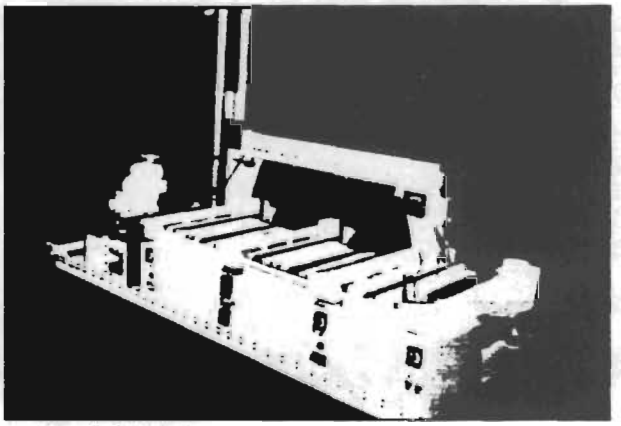
PVC Centrifugal Fan



PVC Stack Fan (Cutaway View)



PVC Hoods & Duct



Special Fabrications

Tri-Mer Corporation
Factory and Main Offices
1400 Monroe, Owosso, Michigan 48867
Phone (517) 723-7838 Telex 228545

Tri-Mer Corporation
California Sales Offices
P.O. Box 1152, Costa Mesa, California 92626
Phone (714) 548-5853

EUROPEAN REPRESENTATIVE
JAEGER K. G.
D BRAUNSCHWEIG, WEST GERMANY

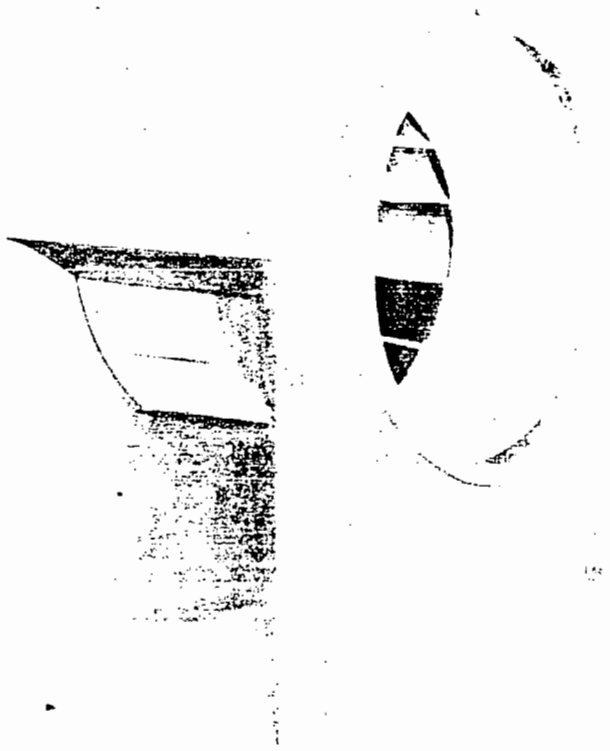
Litho in U.S.A.

PVC

UNPLASTICIZED POLYVINYL CHLORIDE

NON-OVERLOADING BLOWERS

(BACKWARD INCLINED BLADES)



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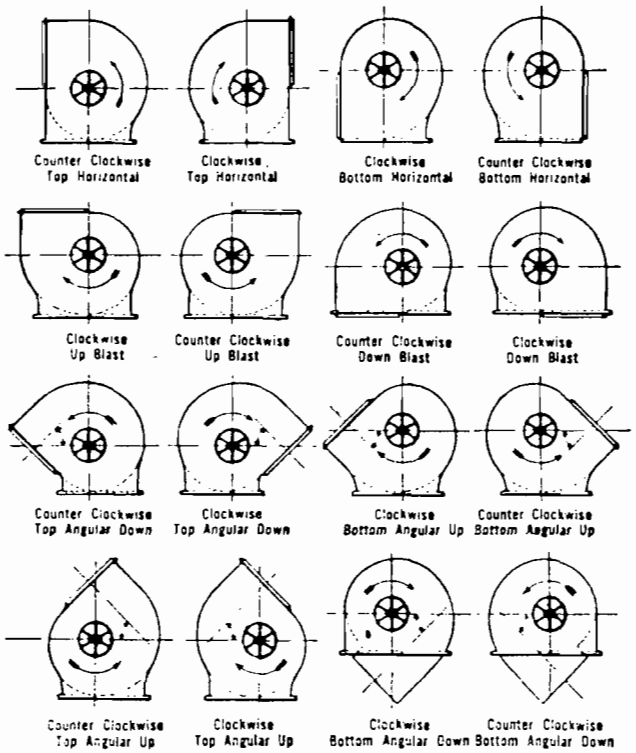
Air Pollution Control Systems

DESIGN • ENGINEERING • MANUFACTURING

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

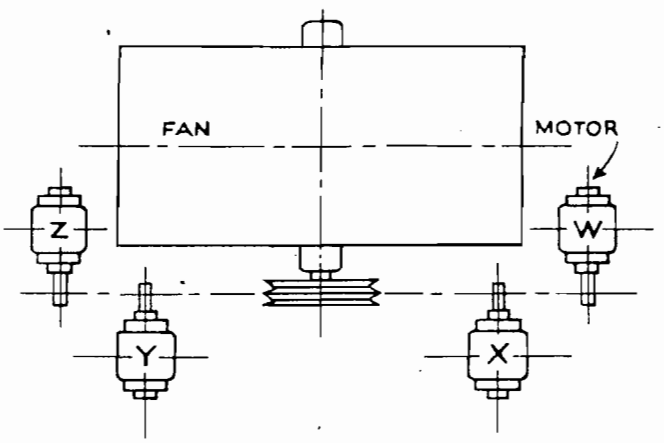
STANDARD NOMENCLATURE

Direction of Rotation and Discharge



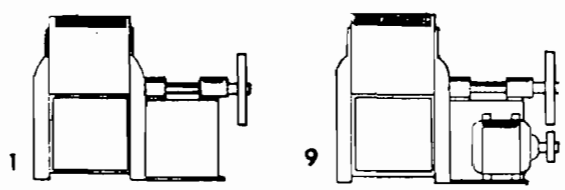
Direction of rotation is determined from the drive side. On single inlet fans, drive side is considered as opposite inlet, regardless of actual drive location.

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.

CAPACITY TABLES

TRI-MER CORPORATION
Air Pollution Control Systems

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
[illegible]	[illegible]	[illegible]	[illegible]	614	.25	663	.31	708	.38	751	.45	[illegible]	.61	1101	[illegible]	[illegible]	2.16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.31	700	.37	743	.44	783	.52	[illegible]	.68	1118	[illegible]	[illegible]	2.29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	.28	[illegible]	.35	733	.44	790	.52	819	.61	892	.76	1141	1.53	[illegible]	[illegible]	[illegible]	3.45	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	713	.42	[illegible]	.51	820	.61	857	.68	925	.86	1167	1.66	1370	2.58	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	743	.41	752	[illegible]	[illegible]	[illegible]	[illegible]	.68	896	.78	963	.97	1193	1.81	1393	2.77	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1300	785	[illegible]	827	[illegible]	[illegible]	[illegible]	[illegible]	.78	936	.88	1001	1.09	1224	1.96	1415	2.95	1539	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1300	[illegible]	.57	873	[illegible]	909	[illegible]	[illegible]	[illegible]	978	1.01	1040	1.22	[illegible]	2.14	1443	3.16	1611	4.29	1765	[illegible]	[illegible]	[illegible]
[illegible]	1500	[illegible]	.63	919	.79	[illegible]	[illegible]	[illegible]	1.01	[illegible]	1.13	1080	[illegible]	1290	2.33	1472	3.39	[illegible]	[illegible]	1785	5.73	[illegible]	[illegible]
[illegible]	[illegible]	950	[illegible]	[illegible]	.91	999	[illegible]	1033	[illegible]	1084	1.27	1122	[illegible]	[illegible]	2.54	1501	3.63	1560	[illegible]	1910	6.11	1948	[illegible]
[illegible]	[illegible]	1030	1.56	1062	[illegible]	1092	[illegible]	1123	[illegible]	[illegible]	[illegible]	[illegible]	1.87	1401	3.01	1569	4.19	1719	5.14	[illegible]	[illegible]	[illegible]	8.21
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1610	4.31	[illegible]	[illegible]	1913	7.55	2045	[illegible]
6270	[illegible]	[illegible]	1.79	1259	[illegible]	[illegible]	2.11	[illegible]	[illegible]	[illegible]	2.41	[illegible]	[illegible]	[illegible]	[illegible]	1715	5.51	[illegible]	[illegible]	[illegible]	8.41		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1384	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.77	1733	6.28	[illegible]	7.29	2051	9.39		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.12	2002	8.75				
[illegible]	[illegible]	1542	3.45	1564	3.65	1584	3.83	1605	4.02	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8.08						
[illegible]	[illegible]	[illegible]	[illegible]	1668	4.41	1687	4.61	1705	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	5.04	1771	5.26	1738	5.45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]								
[illegible]	[illegible]	[illegible]	5.01	1875	6.22	1892	6.44	[illegible]	[illegible]	[illegible]	6.91	[illegible]	[illegible]										

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
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	599	.39	639	.47	[illegible]	.55	750	[illegible]	[illegible]	[illegible]	[illegible]	2.55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.46	671	[illegible]	707	.64	776	.83	1010	[illegible]	[illegible]	2.81	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.54	705	.63	[illegible]	.73	[illegible]	.94	[illegible]	1.37	[illegible]	[illegible]	1339	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	.42	[illegible]	[illegible]	704	[illegible]	740	.73	774	.84	836	1.06	[illegible]	2.04	1237	3.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4140	[illegible]	[illegible]	.51	706	.61	713	[illegible]	[illegible]	.84	809	.96	869	1.19	[illegible]	2.21	1258	3.39	1417	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	.61	[illegible]	[illegible]	732	[illegible]	[illegible]	[illegible]	845	1.09	904	1.34	[illegible]	[illegible]	1273	3.52	1435	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	.71	[illegible]	[illegible]	821	[illegible]	[illegible]	[illegible]	[illegible]	1.23	[illegible]	1.51	[illegible]	[illegible]	1303	3.88	1155	5.26	1594	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	.83	830	.97	861	1.11	[illegible]	[illegible]	921	1.39	975	1.67	1165	[illegible]	1329	4.16	1476	[illegible]	1612	7.11	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	872	1.11	902	1.26	933	1.41	[illegible]	[illegible]	1013	1.87	[illegible]	[illegible]	1356	4.46	1499	5.91	1634	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	1.41	[illegible]	[illegible]	[illegible]	[illegible]	1014	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.14	1552	[illegible]	[illegible]	8.32	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	1.71	1047	[illegible]	1072	2.05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.91	1611	[illegible]	1732	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	1137	[illegible]	1161	2.57	[illegible]	2.77	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.75	1672	[illegible]	[illegible]	10.3		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1271	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1738	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	1320	[illegible]	[illegible]	[illegible]	1361	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.7				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9.91						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1615	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1709	7.91	[illegible]	[illegible]	1740	[illegible]	[illegible]	[illegible]										

BHP shown does not include belt drive loss.

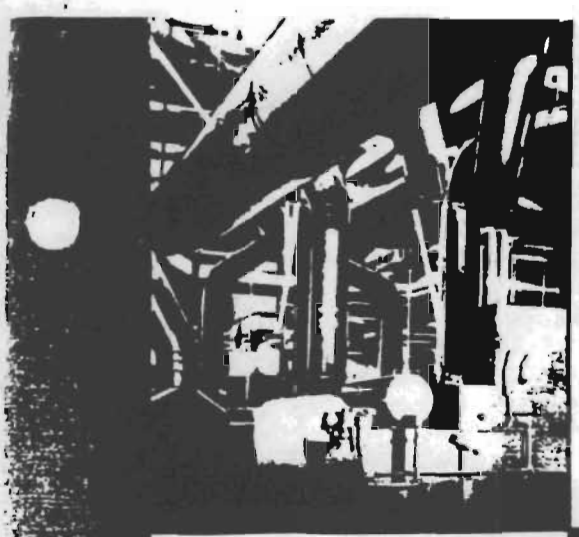
TRI-MER CORPORATION
Air Pollution Control Systems

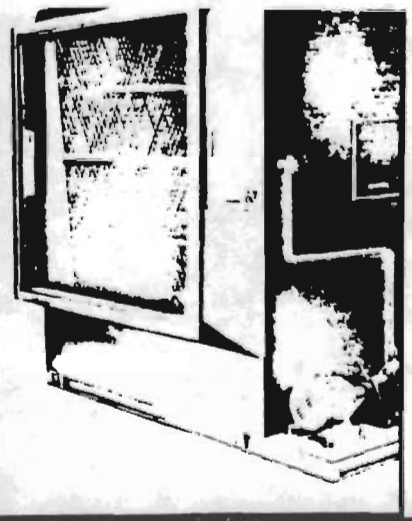
SIZE 27

Wheel Diameter = 27"
Wheel Circumference = 7.06′
Inlet Diameter = 30"
Fan Outlet Area = 4.19 sq. ft.
Safe RPM = 1700
Maximum BHP = $3.10\left(\frac{RPM}{1000}\right)^3$

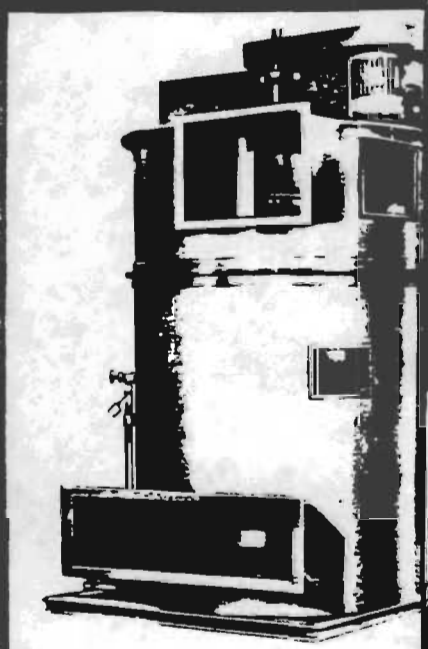
CFM	OV	¼" SP		⅜" SP		½" SP		⅝" SP		¾" SP		1" SP		2" SP		3" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3352	[illegible]	[illegible]	.26	[illegible]	[illegible]	519	.43	551	.52	583	.61	643	.81										
3771	900	[illegible]	.32	517	[illegible]	[illegible]	.51	582	.61	611	.71	667	[illegible]	872	[illegible]								
4190	1000	517	.38	552	[illegible]	[illegible]	.61	614	.71	647	.81	694	1.03	885	2.04								
4609	1100	[illegible]	.46	[illegible]	[illegible]	618	.71	647	.81	674	.93	[illegible]	1.17	904	2.22	1069	3.46						
5028	1200	591	[illegible]	623	[illegible]	[illegible]	.81	681	.94	707	1.07	755	[illegible]	925	2.43	1090	3.69	[illegible]	5.13				
5447	1300	629	.66	660	.81	[illegible]	.93	716	1.08	741	1.21	787	1.49	950	[illegible]	1097	3.95	1237	5.42				
5866	1400	669	[illegible]	698	.93	[illegible]	1.08	751	[illegible]	776	1.37	[illegible]	[illegible]	[illegible]	2.91	1118	4.25	1249	5.73	1377	7.37		
6285	1500	709	.92	736	1.07	762	1.23	787	1.39	811	1.55	[illegible]	[illegible]	1007	3.15	1141	4.56	1267	6.09	1389	7.75	[illegible]	[illegible]
6704	1600	[illegible]	1.09	774	1.23	800	1.41	823	1.57	847	1.74	890	[illegible]	[illegible]	3.46	1167	4.91	1286	6.46	1403	8.16	1515	[illegible]
7542	1800	[illegible]	[illegible]	[illegible]	1.63	875	1.81	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1102	[illegible]	[illegible]	[illegible]	1335	7.35	1440	9.08	1545	11.1
8380	2000	[illegible]	[illegible]	935	2.11	965	2.29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1158	4.31	[illegible]	[illegible]	1389	8.31	1489	10.2	1585	12.1
9218	2200	1001	[illegible]	1017	[illegible]	1032	[illegible]	[illegible]	[illegible]	[illegible]	3.31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.18	1448	9.41	1543	11.4	1632	13.4
10056	2400	1087	3.16	1102	[illegible]	1117	[illegible]	[illegible]	3.79	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1414	8.54	1510	10.6	1600	12.7	1597	14.9
10894	2600	1173	3.94	1185	4.12	1199	4.35	1214	[illegible]	[illegible]	4.83	[illegible]	[illegible]	[illegible]	[illegible]	1433	9.74	1577	11.9	1662	14.2		
11732	2800	1258	4.83	[illegible]	5.07	[illegible]	[illegible]	1297	5.54	1312	5.81	[illegible]	[illegible]	[illegible]	[illegible]	1551	11.1	1643	13.4				
12570	3000	1345	5.39	1356	6.11	1369	6.32	1380	6.61	1394	6.39	1419	[illegible]	[illegible]	[illegible]	[illegible]	12.4						
13408	3200	1431	7.07	1442	7.31	1453	7.58	1464	7.83	1476	8.12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13.9						
[illegible]	3400	1518	3.42	1527	3.65	1539	8.95	[illegible]	9.24	[illegible]	9.10	[illegible]	[illegible]	[illegible]	[illegible]								

BHP shown does not include belt drive loss.

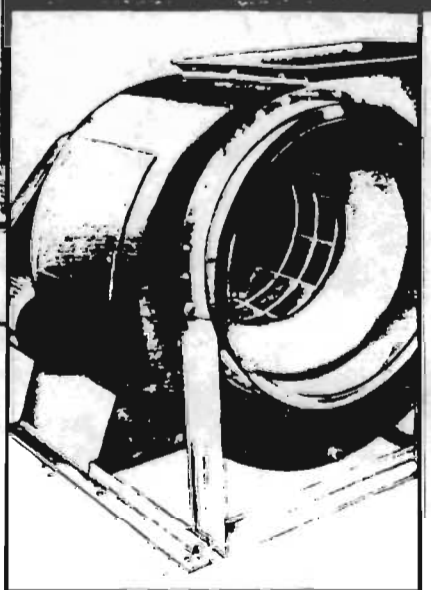


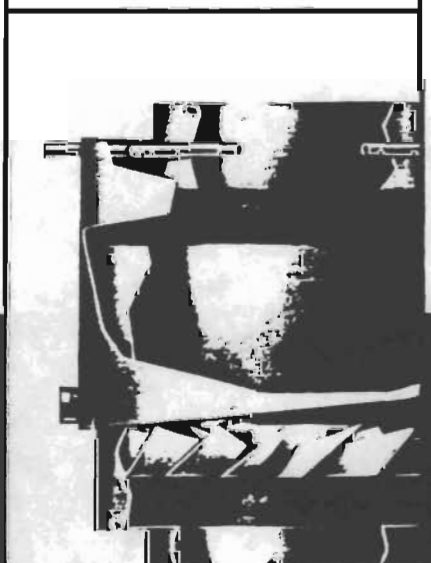


MEET YOUR
POLLUTION CONTROL
REQUIREMENTS
WITH THE LEADER IN
PVC FABRICATIONS



Duall





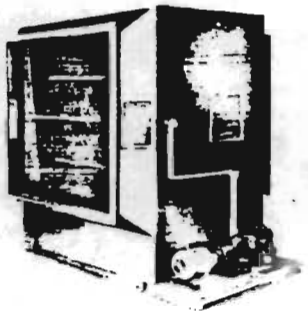
PVC CONSTRUCTED
FUME SCRUBBERS
CENTRIFUGAL FANS
DUCTING and HOODS
OIL MIST COLLECTORS
COMPLETE SYSTEMS

Duall
INDUSTRIES, INC.
700 S. McMillan Street • Owosso, Michigan 48867
Phone (517) 725-8184 • Telex 228-532
P. O. Box 1000 • 102 Hillside Drive

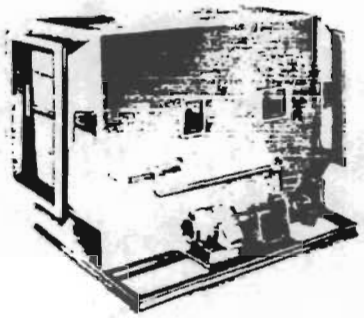
Duall

Fume Scrubbers in 6 Types

F-101 SERIES



Single Pack



Double Pack

Duall Single Pack (four Stage) Fume Scrubbers solve most industrial air pollution problems. They are especially effective on water soluble fumes and odors, or with pH control on many low soluble contaminants.

Some typical proven applications are:

- Acid fumes.
- Plating fumes.
- Cleaning fumes.
- Lab hood fumes.
- Anodizing fumes.
- Pickling fumes.
- Rust-proofing fumes.
- Die-casting fumes.
- Water soluble odors.

Duall Single Pack Fume Scrubbers incorporate these advantages:

- Low cost.
- Low maintenance.
- Low water consumption.
- Low static pressure drop.
- 100% corrosion resistant.

Duall Double Pack (six stage) Fume Scrubbers offer the broadest range of answers to industrial air pollution problems. By double scrubbing the air these scrubbers provide maximum efficiency on tough fumes and odors which can not be completely absorbed in a single pack type scrubber.

Duall's Double Pack Scrubbers have proven effective on the following typical applications:

- Bright dip fumes.
- Strip tank fumes.
- Etching fumes.
- Most low solubility fumes and odors.

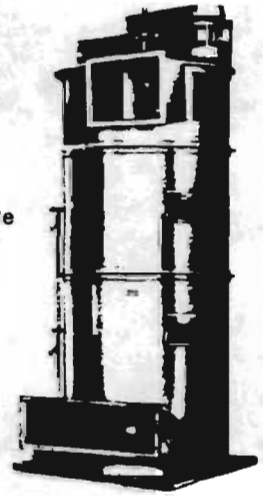
Our Double Pack Fume Scrubbers offer all the advantages of the Single Pack units as well as the broadest range of applications.

All Duall Fume Scrubbers can be modified for custom installation with multiple packs or extended depth packs. Multiple modular units are available for capacities larger than standard.

See page 6 for complete specs and performance data.

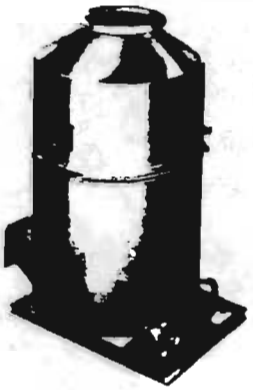
FW-300 SERIES

Single Pack

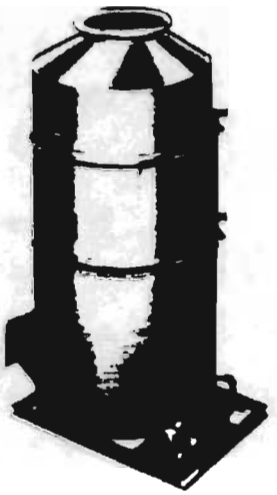


Double Pack

PT-500 SERIES

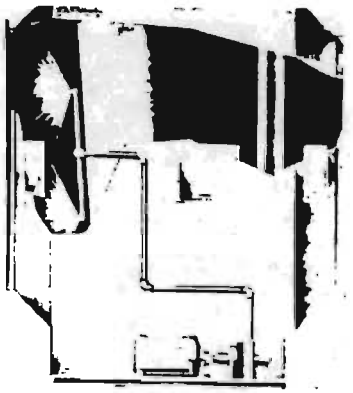


Single Pack



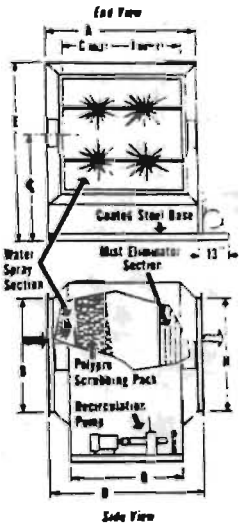
Double Pack

F-101 HORIZONTAL SINGLE FILTER PACK

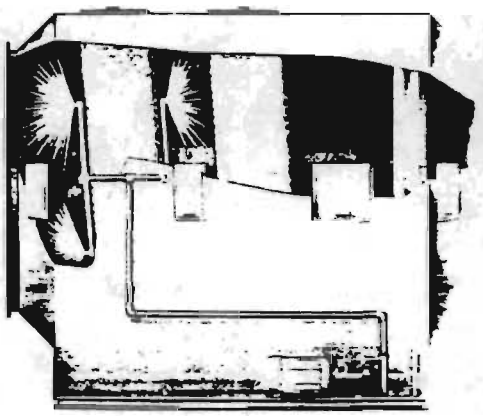


Being our most popular scrubber design, this compact 100% corrosion resistant P.V.C. unit has proven its efficiency nationwide. The Duall F-101 incorporates high efficiency, low maintenance filter media and the open orifice type spray nozzles, for the assurance of a thoroughly saturated collection chamber. Our mist eliminator outlet section gives four air direction changes to properly remove the entrained moisture. Where a horizontal installation is preferred, the F-101 should be your choice.

CFM in 000's	DIMENSIONS IN INCHES A	B	C	D	E	H	I	Q	¢	CFM in 000's	A	B	C	D	E	H	I	Q	¢
0.5	18	10	10	49	30	10	10	37	21	20	88	61	72	66	87	61	72	46	52½
1	22	14	14	50	34	14	14	38	23	22	97	61	81	66	87	61	81	46	52½
2	28	20	20	50	40	20	20	38	26	24	104	61	88	66	87	61	88	46	52½
3	32	24	24	51	44	24	24	39	28	26	112	61	96	66	87	61	96	46	52½
4	37	29	29	52	49	29	29	40	30½	28	123	61	107	66	87	61	107	46	52½
5	41	33	33	52	53	33	33	40	32½	30	135	61	119	66	87	61	119	46	52½
6	45	37	37	53	58	37	37	41	35½	35	157	61	141	66	87	61	141	46	52½
8	52	44	44	54	65	44	44	42	39	40	179	61	163	66	87	61	163	46	52½
~~10~~	~~58~~	~~46~~	~~46~~	~~55~~	~~71~~	~~46~~	~~46~~	~~43~~	~~42~~	45	102	61	186	66	87	61	186	46	52½
12	64	52	52	60	77	52	52	44	45	50	224	61	208	66	87	61	208	46	52½
14	69	57	57	60	82	57	57	44	47½	55	247	61	231	66	87	61	231	46	52½
16	74	62	62	61	87	62	62	45	50	60	269	61	253	66	87	61	253	46	52½
18	81	65	69	61	91	65	69	45	52½	●	Larger sizes on request.								

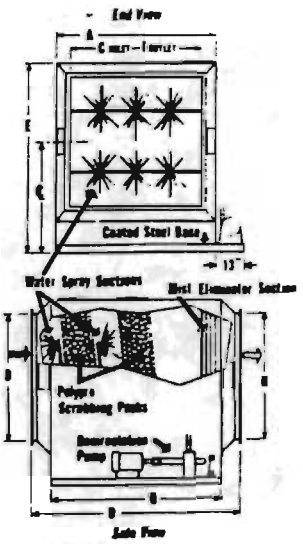


F-101D HORIZONTAL DOUBLE FILTER PACK



An extra heavy duty scrubber for real "tuffies". It incorporates *two* filter packs with *two* sets of sprays for more thorough scrubbing . . . plus an effective mist eliminator at the air outlet. Serious concentrations of rough fumes, such as nitric, hydrofluoric, and hydrochloric acid are double scrubbed through six stages for maximum efficiency. Use this high efficiency fume scrubber, at only a small increase in price.

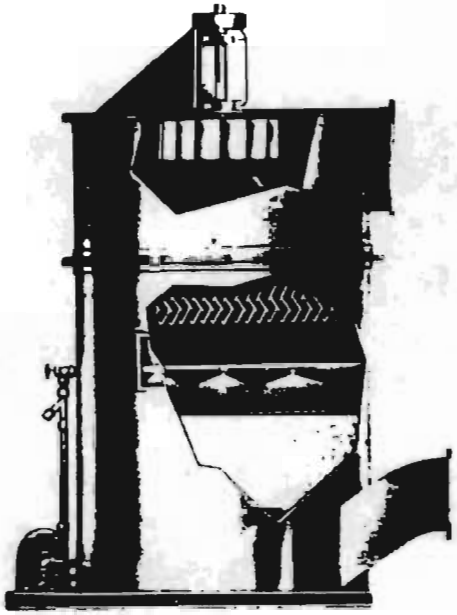
CFM in 000's	DIMENSIONS IN INCHES A	B	C	D	E	H	I	Q	¢	CFM in 000's	A	B	C	D	E	H	I	Q	¢
0.5	18	10	10	70	30	10	10	58	21	20	88	61	72	87	91	61	72	67	52½
1	22	14	14	71	34	14	14	59	23	22	97	61	81	87	91	61	81	67	52½
2	28	20	20	71	40	20	20	59	26	24	104	61	88	87	91	61	88	67	52½
3	32	24	24	72	44	24	24	60	28	26	112	61	96	87	91	61	96	67	52½
4	37	29	29	73	49	29	29	61	30½	28	123	61	107	87	91	61	107	67	52½
5	41	33	33	73	53	33	33	61	32½	30	135	61	119	87	91	61	119	67	52½
6	45	37	37	74	58	37	37	62	35½	35	157	61	141	87	91	61	141	67	52½
8	52	44	44	75	65	44	44	63	39	40	179	61	163	87	91	61	163	67	52½
10	58	46	46	80	71	46	46	64	42	45	202	61	186	87	91	61	186	67	52½
12	64	52	52	81	77	52	52	65	45	50	224	61	208	87	91	61	208	67	52½
14	69	57	57	81	82	57	57	65	47½	55	247	61	231	87	91	61	231	67	52½
16	74	62	62	82	87	62	62	66	50	60	269	61	253	87	91	61	253	67	52½
18	81	65	69	82	91	65	69	66	52½	●	Larger sizes on request								



Duall

PVC Constructed, 100% Corrosion Free

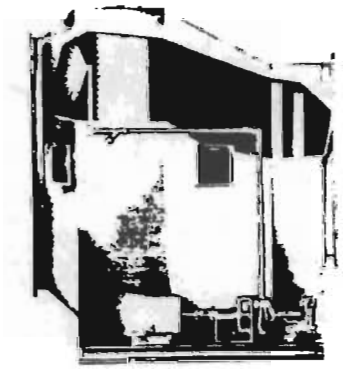
FUME SCRUBBERS



FW-300 Vertical Pack with Blower

500 TO 12,000 C.F.M. . . *plus multiple installations*

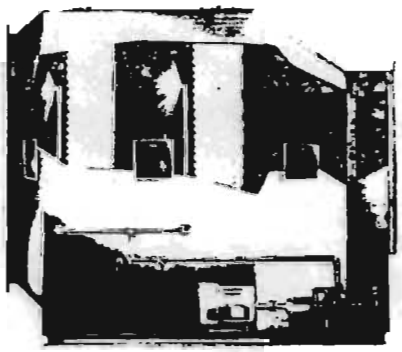
This packed tower type scrubber is not only a space saver, it's also a true economy model. It incorporates a built-in rugged fan with convenient exterior, belt driven, TEFCBB motor. During installation, the horizontal air discharge can be swivelled 360° before sealing into permanent position. Efficiency is equal to the F-101 and the PT-500. Compactness and versatility make it an unusually popular model. This FW-300 saves three ways . . . in initial cost, installation, and in space. Also available with double pack.



F-101 Horizontal Single Filter Pack

500 TO OVER 60,000 C.F.M. . . *plus multiple installations*

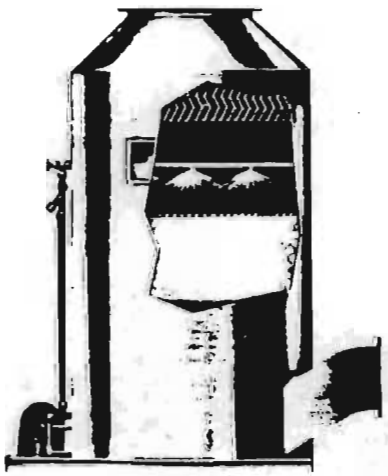
Being our most popular scrubber design, this compact 100% corrosion resistant P.V.C. unit has proven its efficiency in 46 states. The Duall F-101 incorporates high efficiency, low maintenance filter media and the open orifice type spray nozzles, for the assurance of a thoroughly saturated collection chamber. Our mist eliminator outlet section gives four air direction changes to properly remove the entrained moisture. Where a horizontal installation is preferred, the F-101 should be your choice.



F-101-D Horizontal Double Filter Pack

500 TO OVER 60,000 C.F.M. . . *plus multiple installations*

An extra heavy duty scrubber for real "tuffies". It incorporates *two* filter packs with *two* sets of sprays for more thorough scrubbing . . . plus an effective mist eliminator at the air outlet. Serious concentrations of rough fumes, such as nitric, hydrofluoric, and hydrochloric acid are double scrubbed through six stages for maximum efficiency. For such problems in your plant, use this high efficiency fume scrubber, at only a small increase in price.



PT-500 Vertical Pack

500 TO OVER 30,000 C.F.M. . . *plus multiple installations*

The upright PT-500 is the space saver. This scrubber is a vertical packed tower type designed to fit into restricted spaces where floor space is at a premium. Its efficiency is equal to the F-101, and also 100% corrosion-free. Air flow is up through a thoroughly water saturated bed of filter media. The mist eliminator pack near the top outlet assures properly dried air. If space is your problem, take a good look at the PT-500. Also available with double pack.

Duall INDUSTRIES INC.

770 South McMillan St
Owosso, Michigan 48867
Telephone (517) 725-8184
Telex 228-532

P O Box 100
Forest City, N C 28043
Telephone (704) 245-67

Duall FUME SCRUBBERS

SPECIFICATIONS and PERFORMANCE DATA

DESCRIPTIONS

F-101. Horizontal (cross-flow), four stage, wet scrubber. This model has maximum efficiency on water soluble contaminants and odors, but is also effective on low soluble contaminants with the use of chemical neutralizers.

F-101D. Horizontal (cross-flow), six stage, wet scrubber. The F-101D is especially designed for use on stubborn low solubility contaminants or where extremely high scrubbing efficiency is required on normal contaminants.

FW-300. Vertical (counter-flow), four stage, wet scrubber with integral blower. Efficency is equal to the F-101.

FW-300D. Vertical (counter-flow), six stage, wet scrubber with integral blower. Efficiency is equal to the F-101D.

PT-500. Vertical (counter-flow), four stage, wet scrubber. Efficiency is equal to the F-101.

PT-500D. Vertical (counter-flow), six stage, wet scrubber. Efficiency is equal to the F-101D.

All Duall Fume Scrubbers are constructed of P.V.C. and Polypropylene corrosion resistant materials and include a rugged coated steel base with lifting luggs. All above units are available with extended depth packing.

SCRUBBING PRINCIPLES

Contaminant removal is accomplished by first slowing the fumes to a velocity below 500 fpm and then passing the fumes through two scrubbing stages in the single pack models and four stages in the double pack types. The fumes first pass through a water spray or curtain during which a percentage of the larger contaminant particles drop out and the remaining fumes are saturated. The second stage consists of a 12" deep pack of polypropylene high surface, non-clogging, spherical plate packing media* which is continuously wetted by the spray nozzles. The saturated fumes are impinged upon the packing and the contaminants are absorbed and carried away in the wash water. The first and second stages are repeated in the double pack fume scrubbers.
*Several types of alternate packing media are available on request.

MIST ELIMINATION

After passing through the scrubbing sections, the air is moisture laden and must pass through a two stage gravity mist eliminator section. This final stage of P.V.C. eliminator blades provides four 30° changes in direction and eliminates entrained water.

WATER SUPPLY

All Duall Fume Scrubbers may be supplied with water either directly from your supply or from an integral or remote recirculation system supplied with the scrubber. It is generally recommended that a recirculation system be used to conserve water except on very low cfm units. The actual fresh water consumption on the single pack series with recirculation is only 0.05 to 0.15 gpm/1000 cfm depending on the contaminant involved. On the double pack models, water consumption ranges from 0.1 to 0.3 gpm/1000 cfm. This represents 5% of the water being recirculated. Duall scrubbers are self-draining and may be installed out-doors in sub-zero conditons without freeze-up. If these conditions exsist, a remote recirculation system should be specified for placement in a heated area.

All Duall Scrubbers come complete with fittings for the additon of chemical neutralizers, if required. A complete chemical metering and pumping system is available upon request.

MATERIALS

Every Duall Fume Scrubber is shipped complete with an integral coated steel base. No special mounting is required. Simply connect the duct, the water and power supply, and the unit is ready for operation. Complete installation and operating instructions are supplied with all Duall Scrubbers.

PRESSURE DROP

The following pressure drops are applicable for Scrubbers operated at design CFM:

F-101	2.0" w.g.	FW-300D	3.0" w.g.
F-101D	3.0" w.g.	PT-500	2.0" w.g.
FW-300	2.0" w.g.	PT-500D	3.0" w.g.

On the FW-300 series, the blower is designed for 2.0" external static pressure.

FW-300 BLOWER SECTION

The top section of the FW-300 Fume Scrubber consists of a Duall P.V.C. centrifugal blower complete with motor and OSHA belt guard and shaft cover. The blower section may be rotated through 360° to obtain any desired angle between scrubber inlet and blower outlet. This blower section is same low maintenance, guaranteed corrosion resistant blower described in Duall Brochure No. CI-131, and NH-151.

MAINTENANCE

All Duall Fume Scrubbers incorporate low maintenance components from front to back, including the packing, plumbing system and eliminators. Quick opening inspection doors are at all critical points.

DUALL FUME SCRUBBERS
Typical Average Fume Removal Efficiencies

CONTAMINATES ▼ / MODELS ▶	Single Pack Series: F-101 PT-500 FW-300	Double Pack Series: F-101D PT-500D FW-300D	Single Pack Series: with added Chemical Neutralizer (pH Control)	Double Pack Series: with added Chemical Neutralizer (pH Control)
Acetic Acid	95-98	98-99	—	—
Alkaline Cleaners	96-99	98-99	—	—
Aluminum Bright Dip*	80-85	85-90	—	—
Anodizing	96-99	98-99	—	—
Aqua Regia	80-85	85-90	85-90	90-95
Boric Acid	85-90	90-95	—	—
Caustic Cleaners	98-99	99	—	—
Caustic Soda	98-99	99	—	—
Chlorine	80-85	85-90	85-90	90-95
Chromic Acid	98-99	99	—	—
Copper Chloride	75-80	80-85	85-90	90-95
Cyanide Solutions	98-99	99	—	—
Ferric Chloride	80-85	83-88	—	—
Ferric Nitrate	96-98	98-99	—	—
Ferrous Chloride	90-95	95-98	—	—
Ferrous Sulfate	95-97	96-98	—	—
Fluosilicic Acid	95-98	98-99	—	—
Hydrochloric Acid	80-85	85-90	90-95	95-98
Hydrogen Cyanide	85-90	90-95	—	—
Hydrofluoric Acid	90-93	95-98	—	—
Hydrofluosilicic Acid	95-98	98-99	—	—
Hydrogen Peroxide	90-95	95-99	—	—
Hydrogen Sulfide	70-75	75-80	85-90	95-98
Nickel Chloride	80-85	85-90	90-95	95-98
Nickel Sulfate	80-85	85-90	90-95	95-98
Nitric Acid	75-80	85-90	—	—
Nitrogen Dioxide (NO_2)	45-50	50-60	65-70	70-75
Nitric — HF Acid	75-80	85-90	—	—
Perchloric Acid	95-98	96-99	—	—
Phosphoric Acid	96-99	98-99	—	—
Potassium Dichromate	96-98	98-99	—	—
Selenium Sulfide	96-98	98-99	—	—
Sodium Chloride	96-98	98-99	—	—
Sodium Fluoride	90-95	95-98	—	—
Sodium Glutenate	96-98	98-99	—	—
Sodium Hydroxide	98-99	99	—	—
Sulfur Dioxide	70-75	75-80	80-85	85-90
Sulfuric Acid	96-98	98-99	—	—
Tin Chlorides	75-80	80-85	85-90	90-95
Zinc Chloride	75-80	80-85	—	—
Zinc Nitrate	96-98	98-99	—	—
Zinc Sulfate	96-98	98-99	—	—

* These efficiencies are for the combined nitric and phosphoric fume. The efficiency for the NO_2 portion of the fume only will be as listed above.

● The above efficiencies are intended as guide representing average values. Specific combinations and concentrations of fumes may result in a significant variation from the above.

Florida Department of Environmental Regulation

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

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

June 15, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kent Smith
Environmental Manager
Harris Semiconductor
P. O. Box 883
Melbourne, Florida 32902-0883

Dear Mr. Smith:

Re: Amendment to Construction Permit: AC 05-168460
Harris Semiconductor: Building 63

The Department has reviewed Ms. Nancy Baldisserotto's letters received on April 10 and May 15, 1990. The purpose of the letters was to notify the Department of the phasing-out of a wafer fabrication area and an associated scrubber system (F63S01) and exhaust the remaining equipment it serviced to another existing scrubber system (F63S02). The Department acknowledges the notification with the following conditions:

- The scrubber system's (F63S02) efficiency shall be established for VOC/Solvents using EPA Method 25A pursuant to F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A. Other test methods may be used with prior written Departmental approval pursuant to F.A.C. Rule 17-2.700(3).

- The maximum potential VOC/Solvent emissions shall be calculated using the results (actual emissions) from the efficiency test and prorated to 8760 hrs/yr. This value shall then be compared to the current allowable emission limit for the building/source to determine if any permitting action is necessary.

- The Department's Central District office shall be notified in writing 15 days prior to conducting tests.

- The results of the tests shall be submitted to the Department's Central District office within 45 days after the last test run is completed.

Attachments to be Incorporated:

- Ms. Nancy Baldisserotto's letter received April 10, 1990.
- Ms. Nancy Baldisserotto's letter received May 15, 1990.

This letter must be attached to your air construction permit, AC 05-168460, and shall become a part of the permit.

Sincerely,

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

SS/BM/plm

Attachments

c: C. Collins, Central Dist.
N. Baldisserotto, HS

ATTACHMENTS AVAILABLE UPON REQUEST

HARRIS SEMICONDUCTOR
HARRIS · RCA · GE · INTERSIL

RECEIVED
MAY 15 1990
DER - BAQM

May 11, 1990

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

Re: Exhaust system modification; Permit No. AC 05-168460
Building 63

Dear Mr. Mitchell:

Pursuant to our phone conversation last week, the purpose of this letter is to provide the Department with additional information on the equipment proposed to be attached to building 63 scrubber no. F63S02 once scrubber no. F63S01 is deactivated. As outlined in the letter of notification sent to the State on April 7th, the phase-out of the building's wafer fabrication area has resulted in the removal of numerous pieces of exhausted equipment (see attachment I.)

Attachment II contains a list of the equipment attached to scrubbers F63S01 and F63S02 prior to the shut-down of the fabrication area. Attachment III is a list of equipment currently ducted to the two scrubbers. All exhausted equipment in the VHSIC wafer fabrication area has been removed with the exception of an ion implanter, two acid stations, a vapor deposition furnace and the gas cabinets and vacuum pump that service it. These pieces of equipment will be ducted to scrubber F63S02. The scrubber will also continue to service one of the building's two assembly areas.

It should be noted that the vapor deposition furnace and the associated gas cabinets and vacuum pump are scheduled to be removed sometime this month.

If you have any further questions, please call me at (407) 729-4061.

Sincerely,

Nancy Baldisserotto

Nancy Baldisserotto
Senior Environmental Engineer

Cc:
C. Collins - Cent. Dist 6-12-90 RR

ATTACHMENT I.

HARRIS SEMICONDUCTOR

April 7, 1990

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 No. AC 05-168460
Building 63 Consolidated Air Permit

Dear Mr. Fancy:

By this letter, Harris Semiconductor is providing the Department with notice of the phase-out of one of our wafer fabrication areas. Prior to January of 1990, one of the primary processes occurring in Building 63 was wafer fabrication. The VHSIC wafer fabrication area employed a series of manufacturing procedures that utilized a variety of manufacturing equipment and chemicals in order to produce the desired product. During the late months of 1989, the area was shut down, and wafer fabrication in this building was discontinued. Exhausted Equipment removed included aligners, developers, coaters, furnaces, wet stations, burn boxes, chemical and gas cabinets, vacuum pumps, and chemical drains.

The two scrubbers that handled equipment exhaust from Building 63's wafer fab were F63S01 and F63S02. The systems are located on the east side of the building at ground level. F63S01 provided exhaust and pollution control for acid exhaust drawn from the equipment in the wafer fab and chemical mix room, while F63S02 provided solvent exhaust for the fab, the chemical mix room, and one of the assembly areas.

Prior to the phase-out of the Building 63 fab, equipment requiring approximately 27,000 cfm of exhaust was ducted to scrubber nos. F63S01 and F63S02.

Scrubber no. F63S02 is a Beverly Pacific 10,000 scfm vertical counter-current scrubber. The system has adequate capacity to handle the remaining equipment, which requires only 3,000 cfm of exhaust.

If the Department has no objection, we will be deactivating scrubber no. F63S01 sometime this month. If you have any questions, please give me a call at (407)729-4061.

Sincerely,

Nancy Baldisserotto
Senior Environmental Engineer
Harris Semiconductor

cc: B. Mitchell
C. Collins

ATTACHMENT II.

Bldg 63 (prior to VHSIC shutdown)
10-89

SCRUB_#	ENV_ID	EQUIP_TYPE	AREA	CFM	EQUIP_ID	CHEM1
F63S01	0801	ALLIGNER PE-540	P63F04 ALLIGNMT	100	H910369	(H6 BULB)
	0802	ALLIGNER SRA 100	F63F04 ALLIGNMT	100	H120979	(H6 BULB)
	0803	ULTRASTEP 1100	P63F04 ALLIGNMT	100	N/A	(H6 BULB)
	0806	MICROLITE DEEP UV	P63F04 PHOTORESIST	250	H121150	OZONE
	0807	MICROLITE DEEP UV	P63F04 PHOTORESIST	250	H121150	OZONE
	0808	SOLITEC COATER	P63F04 PHOTORESIST	250	H121229	ECX 1030 PHOTORESIST
	0811	4' ACID STN	P63F04 PHOTORESIST	600	H120973	MF 319 DEVELOP
						MF 320 DEVELOP
						SHIPLEY MICROPOSIT
	0815	6' ACID STN	P63F04 ETCH	900	H120972	PIRANHA
	0816	8' ACID STN	P63F04 ETCH	1200	H123807	HF 10:1
						HF 40:1
	0817	MTI STRIPPER	P63F04 ETCH	10	N/A	NITROUS OXIDE
						OXYGEN
	0818	AME 8100 ETCH	P63F04 ETCH	180	N/A	ARGON
						OXYGEN
						TRIFLUOROMETHANE
	0819	AME-8100 ETCHER	P63F04 ETCH	200	H121181	ARGON
						CHLORINE
						NITROGEN TRIFLUORIDE
						OXYGEN
						TRIFLUOROMETHANE
	0820	ET PLASMAFAB STRIP	P63F04 ETCH	0		CARBON TETRAFLUORIDE
						OXYGEN
	0821	APPLIED MAT'L ETCHER	P63F04 ETCH	150	H125035	BORON TRICHLORIDE
						CARBON TETRAFLUORIDE
						CHLORINE
						TRIFLUOROMETHANE
	0822	AME 8100 ETCHER	P63F04 ETCH	200	H120427	ARGON
						CARBON TETRAFLUORIDE
						NITROGEN TRIFLUORIDE
						OXYGEN
	0823	AME 8100 ETCHER	P63S04 ETCH	200	H120426	OXYGEN
						TRIFLUOROMETHANE
	0824	AME-8100 ETCHER	P63F04 ETCH	200	H120425	BORON TRICHLORIDE
						CHLORINE
						HYDROCHLORIC ACID
						NITROGEN
						OXYGEN
	0825	9' ACID HOOD	P63F04 THIN FILM	750	H120953	ALUMINUM ETCH
						HYDROCHLORIC ACID
						HYDROGEN PEROXIDE
						TUNGSTEN ETCH
						WATER
	0826	5' ACID HOOD	P63F04 THIN FILM	900	N/A	HF 100%
						HF 40%
						PIRANHA
	0827	ASM PECVD	P63F04 THIN FILM	550	H123808	AMMONIA
						ARGON, NITROGEN
						DIBORANE
						DICHLOROSILANE
						NITROUS OXIDE

SCRUB_#	ENV_ID	EQUIP_TYPE	AREA	CFM	EQUIP_ID	CHEM1
F63S01	0827	ASM PECVD	P63F04 THIN FILM	550	H123808	OXYGEN
						PHOSPHINE
						SILANE
	0828	THERMCO MINI-BRUTE	P63F04 THIN FILM	200	H120955	ARGON
						FORMING GAS
	0829	ANICON WCVD	P63F04 THIN FILM	700	H121155	ARGON
						HYDROGEN
						NITROGEN TRIFLUORIDE
						SILANE
						TUNGSTEN HEXAFLUORIDE
	0830	PE 4480 AL SPUTTER	P63F04 THIN FILM	0	H121145	ARGON
						NITROGEN
	0831	MTI SYPHERLINE	P63F04 THIN FILM	40	N/A	ARGON
						NITROGEN
	0832	ACID STOR CAB	F63F04 CHASE	50	N/A	CHLOROSULFONIC ACID
						HF 40:1
						HYDROGEN PEROXIDE
						NITRIC ACID
						OXIDE ETCH 11:1
						SEL-REX
						SULFURIC ACID
	0833	ACID STOR CAB	P63F04 CHASE	50	N/A	ALUM PREDIP ETCH
						OXIDE ETCH 11:1
						SULFURIC ACID
	0834	ACID STOR CAB	P63F04 CHASE	50	N/A	HF 100%
						HF 10:1
						HF 50:1
						NITRIC ACID
						POLYSILICON ETCH
	0835	SOLV STOR CAB	P63F04 CHASE	50	N/A	2-ETHOXYETHANOL
						CELLUSOLVE ACETATE
						ETHANOL
						MEK, IPA, HMDS 10%
						PPD-400 DEVELOPER
						SHIPLEY MF 320 DEVELOP
						SHIPLEY MICROPOSIT DEV
						TOYO SODA
	0836	SOLV STOR CAB	P63F04 CHASE	50	N/A	SHIPLEY S1400-27 PR
						SHIPLEY S1400-DI
	0837	SOLV STOR CAB	P63F04 CHASE	50	N/A	ACETONE
						SHIPLEY MF 319 DEVELOP
						SHIPLEY MICROPOSIT THIN
	0838	GAS CAB	P63F04 CHASE	50	N/A	NITROGEN
						NITROGEN TRIFLUORIDE
	0839	GAS CAB (DBL)	P63F04 CHASE	75	N/A	HALOCARBON 23
						NITROGEN
	0840	GAS CAB (DBL)	P63F04 CHASE	100	N/A	FREON 14
						NITROGEN
	0841	GAS CAB (DBL)	P63F04 CHASE	100	N/A	AMMONIA
						HYDROGEN
	0842	GAS CAB	P63F04 CHASE	75	N/A	NITROGEN
						NITROUS OXIDE

SCRUB_#	ENV_ID	EQUIP_TYPE	AREA	CFM	EQUIP_ID	CHEM1
F63S01	0843	GAS CAB (DBL)	P63F04 CHASE	100	N/A	NITROGEN
						OXYGEN
	0844	GAS CAB (DBL)	P63F04 CHASE	100	N/A	ARGON
						FREON 23
						NITROGEN
	0845	GAS CAB	P63F04 CHASE	75	N/A	DICHLOROSILANE
						NITROGEN
	0846	GAS CAB (DBL)	P63F04 CHASE	100	N/A	NITROGEN
						OXYGEN
	0847	GAS CAB (DBL)	P63F04 CHASE	100	N/A	ARGON
						FREON 23
						NITROGEN
	0848	GAS CAB (DBL)	P63F04 CHASE	100	N/A	ARGON
						PHOSPHINE 100%
						SILANE 100%
	0849	GAS CAB (DBL)	P63F04 CHASE	100	N/A	ARGON
						HYDROGEN
						NITROGEN
	0850	GAS CAB	P63F04 CHASE	75	N/A	NITROGEN
						PHOSPHINE
	0851	GAS CAB	P63F04 CHASE	75	N/A	NITROGEN
						SILANE
	0852	GAS GAS (DBL)	P63F04 CHASE	100	N/A	OXYGEN
	0853	GAS CAB (DBL)	P63F04 CHASE	100	N/A	CARBON TETRAFLUORIDE
						HALOCARBON 14
						NITROGEN TRIFLUORIDE
	0854	GAS CAB (DBL)	P63F04 CHASE	100	N/A	ARGON
						HALOCARBON 23
						OXYGEN
	0855	GAS CAB (DBL)	P63F04 CHASE	100	N/A	NITROGEN
	0856	GAS CAB (DBL)	P63F04 CHASE	100	N/A	CHLORINE
						NITROGEN TRIFLUORIDE
	0857	GAS CAB (DBL)	F63F04 CHASE	100	N/A	ARGON
						HYDROCHLORIC ACID
	0858	GAS CAB	P63F04 CHASE	75	N/A	CHLORINE
						NITROGEN
	0859	VAC PUMP	P63F04 CHASE	5	N/A	ARGON
						NITROGEN
	0860	VAC PUMP	P63F04 CHASE	5	N/A	ARGON
						NITROGEN
	0861	VAC PUMP	P63F04 CHASE	5	N/A	
	0862	VAC PUMP	P63F04 CHASE	5	N/A	
	0863	VAC PUMP	P63F04 CHASE	5	N/A	
	0864	GAS CAB	P63F04 CHASE	75	N/A	BORON TRICHLORIDE
	0865	VAC PUMP	P63F04 CHASE	5	N/A	
	0866	VAC PUMP	P63F04 CHASE	5	N/A	
	0867	VAC PUMP	P63F04 CHASE	5	N/A	
	0868	GAS CAB	P63F04 CHASE	75	N/A	
	0871	VAC PUMP	P63F04 CHASE	5	N/A	
	0872	VAC PUMP	P63S04 CHASE	5	N/A	
	0874	VAC PUMP	P63F04 CHASE	5	N/A	OIL VAPORS
	0875	VAC PUMP	P63F04 CHASE	5	N/A	OIL VAPORS

SCRUB_#	ENV_ID	EQUIP_TYPE	AREA	CFM	EQUIP_ID	CHEM1
F63S01	0877	FSI CONSOLE	P63F03 CHASE	650	N/A	
	0901	FSI 3000 SATURN	P63F03 DIFFUSN	150	N/A	125:1 HF
						HYDROCHLORIC ACID
						HYDROGEN PEROXIDE
						SULFURIC ACID
	0902	FSI 2800	P63F03 DIFFUSN	150	N/A	125:1 HF
						HYDROCHLORIC ACID
						HYDROGEN PEROXIDE
						SULFURIC ACID
	0903	FURNACE BANK	P63F03 DIFFUSN	1000	H120428	HYDROGEN
						NITROGEN
						OXYGEN
						TCA
	0904	FURNACE BANK	P63F03 DIFFUSN	1000	H120429	HYDROGEN
						NITROGEN
						OXYGEN
						TCA
	0905	FURNACE BANK	P63F03 DIFFUSN	1000	N/A	HYDROCHLORIC ACID
						OXYGEN
						PHOSPHINE 100%
						SILANE
	0907	GAS CAB (DBL)	F63F03	100	N/A	NITROGEN
	0908	GAS CAB (DBL)	F63F03	100	N/A	ARGON
						OXYGEN
	0909	GAS CAB (DBL)	F63F03	100	N/A	NITROGEN
						OXYGEN
	0910	GAS CAB (DBL)	P63F03	100	N/A	HYDROCHLORIC ACID
						NITROGEN
	0911	ACID STOR CAB	P63F03	50	N/A	AMMONIUM HYDROXIDE
						HYDROGEN PEROXIDE
						POTASSIUM HYDROXIDE
	0912	SOLV STOR CAB	P63F03	50	N/A	ACETONE
						ALTILITH CHEMICAL STRIP
						ETHANOL
						MICROPOSIT MF-312 DEV
						MIK
	0913	TUBE CLEAN	P63F03	1800	H120980	HF
						NITRIC ACID
	0914	FIXTURE CLEAN	P63F03	500	H122313	HF
	0915	ATCOR BOX WASH	P63F03	300	N/A	WATER ONLY
	0916	GAS CAB (DBL)	P63F03	100	N/A	PHOSPHINE 6%
						SILANE 100%
	0917	GAS CAB (DBL)	P63F03	100	N/A	HYDROGEN
	0918	GAS CAB	P63F03	75	(VF 17)	DICHLOROSILANE
	0919	GAS CAB (S)	P63F03	75	(VF 18)	SILANE
	0920	GAS CAB	P63F03	75	(VF 7)	PHOSPHINE
	0921	GAS CAB	P63F03	75	(VF 19)	5% PHOSPHINE/SILANE
	0924	3' ACID STN	P63F02 CHEM MIX	450	N/A	NITRIC ACID
	0925	4' SOLV STN	P63F02 CHEM MIX	450	N/A	POTASSIUM HYDROXIDE
	0926	6' ACID STN	P63F02 CHEM MIX	1500	N/A	HF
	0927	5' SOLV STN	P63F02 CHEM MIX	700	N/A	ACETONE
						ISOPROPANOL

SCRUB_#	ENV_ID	EQUIP_TYPE	AREA	CFM	EQUIP_ID	CHEM1
F63S01	0927	5' SOLV STN	P63F02 CHEM MIX	700	N/A	METHANOL
	0928	3' SOURCE CLEAN STN	P63F02 CHEM MIX	450	N/A	ACHESON MOLYDAG 210
	0960	2' ACID STN	P63F05 PC PARTS PREP	200	N/A	HYDROCHLORIC ACID
	0965	DIE ATTACH	P63F05 ENGR LAB	500	N/A	CERRIC SULFATE
						NITRIC ACID
F63S02	0809	6' SOLV STN	P63F04 PHOTORESIST	900	H120994	ACETONE
						IPA
	0810	SOLITEK DEVELOPER	P63F04 PHOTORESIST	100	N/A	
	0812	SVG DEVELOPER	P63F04 PHOTORESIST	150	H120423	MF 319 DEVELOP
	0813	SVG COATER	P63F04 PHOTORESIST	200	H120424	HMDS
						SHIPLEY 1400 PHOTORESIST
	0814	SVG COATER	P63F04 PHOTORESIST	200	H123806	AZ 5214 PHOTORESIST
						ECX 1030 PHOTORESIST
						HMDS
						SHIPLEY 1400 PHOTORESIST
	0869	CHEM STOR CAB	P63F04	50	N/A	ACETONE
						IPA
						SHIPLEY MICROPOSIT PR
						THINNER A
	0870	MICROSTRIP DISPENSE	P63F04 CHASE	0	N/A	MICROSTRIP
	0873	CHEM CANISTER	P63F04 CHASE	0	N/A	EPA SOLVENT
						HMDS
	0906	ION IMPLANTER	P63F03 DIFFUSN	900	H120430	ARSENE
						BORON
						PHOSPHINE
	0930	5' SOLV CLEAN STN	F63F01 ENVIRO	750	H916216	ACETONE
						FREON TF
						IPA
	0931	CENTRI CENTRIFUGE	P63F01 ENVIRO	0	H915506	NONE USED
	0933	CLEAN/DRY STN	P63F01 ASSEMBLY	0	N/A	IPA
	0934	CLEAN/DRY STN	P63F01 ASSEMBLY	0	N/A	IPA
	0935	CLEAN/DRY STN	P63F01 ASSEMBLY	0	N/A	IPA
	0936	CLEAN/DRY STN	P63F01 ASSEMBLY	0	N/A	IPA
	0937	ULTRATECH DIE WASH	P63F01 DIE AREA	100	H915436	WATER
	0938	4' SOLV CLEAN STN	P63F01 DIE AREA	450	H916215	IPA
	0939	ULTRATECH DIE WASH	P63F01 PARTS PREP	100	H914970	CARBON DIOXIDE
						WATER
	0940	BREAK/SORT STN	P63F01 PARTS PREP	0	N/A	FREON TF
	0941	BRANSON DEGREASER	P63F01 PARTS PREP	300	H914872	FREON TF

ATTACHMENT III.

SCRUB_#	ENV_ID	EQUIP_TYPE	AREA	CFM	EQUIP_ID	CHEM1
F63S02	0825	9' ACID HOOD	P63F04 THIN FILM	750	H120953	ALUMINUM ETCH
						HYDROCHLORIC ACID
						HYDROGEN PEROXIDE
						TUNGSTEN ETCH
						WATER
	0826	5' ACID HOOD	P63F04 THIN FILM	900	N/A	HF 100%
						HF 40%
						PIRANHA
	0846	GAS CAB (DBL)	P63F04	100	N/A	NITROGEN
						OXYGEN
	0847	GAS CAB (DBL)	P63F04 CHASE	100	N/A	ARGON
						FREON 23
						NITROGEN
	0848	GAS CAB (DBL)	P63F04 CHASE	100	N/A	ARGON
						PHOSPHINE 100%
						SILANE 100%
	0849	GAS CAB (DBL)	P63F04	100	N/A	ARGON
						HYDROGEN
						NITROGEN
	0850	GAS CAB	P63F04 CHASE	75	N/A	NITROGEN
						PHOSPHINE
	0851	GAS CAB	P63F04	75	N/A	NITROGEN
						SILANE
	0860	VAC PUMP	P63F04 CHASE	5	N/A	ARGON
						NITROGEN
	0906	ION IMPLANTER	P63F03 DIFFUSN	900	H120430	ARSENE
						BORON
						PHOSPHINE
	0930	5' SOLV CLEAN STN	F63F01 ENVIRO	750	H916216	ACETONE
						FREON TF
						IPA
	0931	CENTRI CENTRIFUGE	P63F01 ENVIRO	0	H915506	NONE USED
	0933	CLEAN/DRY STN	P63F01 ASSEMBLY	0	N/A	IPA
	0934	CLEAN/DRY STN	P63F01 ASSEMBLY	0	N/A	IPA
	0935	CLEAN/DRY STN	P63F01 ASSEMBLY	0	N/A	IPA
	0936	CLEAN/DRY STN	P63F01 ASSEMBLY	0	N/A	IPA
	0937	ULTRATECH DIE WASH	P63F01 DIE AREA	100	H915436	WATER
	0938	4' SOLV CLEAN STN	P63F01 DIE AREA	450	H916215	IPA
	0939	ULTRATECH DIE WASH	P63F01 PARTS PREP	100	H914970	CARBON DIOXIDE
						WATER
	0940	BREAK/SORT STN	P63F01 PARTS PREP	0	N/A	FREON TF
	0941	BRANSON DEGREASER	P63F01 PARTS PREP	300	H914872	FREON TF

Florida Department of Environmental Regulation

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

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary

May 8, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kent Smith, Environmental Manager
Harris Semiconductor
P. O. Box 883
Melbourne, Florida 32902-0883

Dear Mr. Smith:

Re: Amendment of Constructio: Permits Nos. AC 05-147321 and -150794

An amendment package was signed on April 27, 1990, which contained a reference to Building 59, a source at HS (Harris Semiconductor). Based on a phone conversation with Ms. Nancy Baldisserotto, with HS, and Mr. Bruce Mitchell, with FDER's BAR, on May 2, 1990, it was noted that the affected source is Building 54, and not 59. Therefore, the following will be changed and added:

A. AC 05-147321

o Specific Condition

11. (New)
If the strategies relating to Building 54, as outlined in Mr. Kent Smith's letters dated March 12 and April 19, 1990, do not eliminate objectionable odor complaints, then the entire facility, on a per building basis, will have to be evaluated for eliminating objectionable odors.

B. AC 05-150794

o Specific Condition

FROM:

11. (New)
If the strategies relating to Building 59, as outlined in Mr. Kent Smith's letters dated March 12 and April 19, 1990, do not eliminate objectionable odor complaints, then the entire facility, on a per building basis, will have to be evaluated for eliminating objectionable odors.

TO:

11. Deleted.

C. Attachments to be Incorporated

- o Ms. Nancy Baldisserotto's letter received March 12, 1990.
- o Mr. Kent Smith's letter dated March 12, 1990.
- o Mr. Kent Smith's letter dated April 19, 1990.

This letter must be attached to your air construction permits, as referenced above, and shall become a part of the permits.

Sincerely,

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

SS/BM/plm

Attachment

c: C. Collins, Central Dist.
N. Baldisserotto, HS

HARRIS SEMICONDUCTOR
HARRIS RCA GE INTERSIL

RECEIVED
MAR 12 1990
DER-BAQM

March 8, 1990

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

Subject: Extension of Consolidated Construction Permits
Harris Semiconductor, Melbourne

Permit Nos.	Bldg.
AC 05-147321	54
AC 05-150794	59
AC 05-157786	51
AC 05-157787	62
AC 05-158237	63
AC 05-159484	58
AC 05-161706	57
AC 05-164544	55
AC 05-168460	60

Dear Mr. Fancy:

In accordance with F.A.C. rule 17-4.09 and Specific Condition No. 13 of the above mentioned air permits, the purpose of this letter is to request an extension of the expiration dates until December 30th, 1990.

Harris Semiconductor and the Orlando FDER are currently undergoing negotiations concerning an objectionable odor warning notice issued to the Palm Bay site in December (warning notice OWN-AP-89-0151.) The Orlando FDER has indicated that Semiconductor will not be issued operating permits in June if the odor issue is not resolved by that time. If the Department requires Semiconductor to submit applications for operating permits in March which it intends to deny because a solution to this issue has not been fully implemented by June, Semiconductor will be forced to initiate administrative litigation or operate without permits. If Semiconductor and the Agency are both working to resolve this issue, you may agree that this dilemma would not be desirable from the perspective of either Semiconductor or the Department.

To avoid an unnecessary permitting crisis while the Department and Semiconductor reach agreement on the means of solving the odor issue, Semiconductor is requesting that the Department extend the expirations dates by a period of six (6) months. This is currently the expiration date of the construction permit for building 4 (permit no. AC 05-165757.)

If this extension is granted, operating permit applications for all applicable buildings on the site will be submitted by September 30th, 1990. Please note that this will not affect the submittal of the annual operating reports and mass balance information for 1989, which is currently due by March 31st.

Please feel free to phone me at (407) 729-4061 if you have any questions.

Sincerely,

Nancy Baldisserotto

Nancy Baldisserotto
Senior Environmental Engineer
Environmental Services

cc: T. Sawicki
B. Mitchell

\extnrqst.2

HARRIS SEMICONDUCTOR

March 12, 1990

Express Mail

Charles M. Collins, P.E.
Program Administrator
Air Resources Management
Central Florida District
Florida Department of Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

RE: Brevard County - AP
Warning Notice - OWN-AP-89-0151

Dear Mr. Collins:

This letter is submitted on behalf of Harris Corporation, Semiconductor Sector ("Semiconductor") to follow-up on our letter of February 16. In that letter, it was stated that Semiconductor would, within 30 days, submit a schedule outlining the activities that will be undertaken to identify reasonable and appropriate solutions to the odor issue.

As mentioned in previous correspondence, Jacobs Engineering Group, Inc. ("Jacobs") has been retained by Semiconductor to facilitate the odor issue investigation. In a recent meeting, Jacobs recommended a revision of the suggested activities as outlined in the February 16 letter. As such, Jacobs has recommended that the odor investigation continue as follows:

Work Item One : Chemical inventory and historical stack monitoring information will be reviewed and used in a dispersion model to determine areas that may be affected by odors. This change was recommended by Jacobs as opposed to running stack analyses on all emission points from Bldg. 54. Jacobs feels that previous monitoring activities will provide the information needed for the dispersion modeling.

This item is scheduled to be completed by March 30, 1990.

Work Item Two: Through the use of an Organic Vapor Analyzer in GC mode, investigate the level of constituents present at likely "odor hot spots." These areas would be determined through the use of the computer dispersion model outlined in Work Item One.

This item is scheduled for completion by April 27, 1990.

This is the plan of action Semiconductor intends to pursue.

Subsequent to these activities, Semiconductor will submit a completed report, by May 4, 1990, detailing the information obtained during completion of the Work Items. This report will include any proposed modifications or process changes.

To supplement these activities, Semiconductor has already contracted with Air Consulting and Engineering (ACE) to conduct GC/MS sampling from one of the stacks at Building 54. The stack chosen is the most likely candidate to be contributing to the alleged odor problem. Due to the prohibitive cost of running complete analyses on all stacks ($60,000 per stack for 24 hours of sampling as quoted by Jacobs), we chose to sample one stack for a period of 10 operating hours. This will give us total coverage of first shift activities along with 1 hour on either side of shift changes. This data will subsequently be utilized in the dispersion model to add further background information to the investigation.

In addition to these activities, Semiconductor has taken a close look at the processes within the Building 54 wafer fabrication area that may be a source of the odor issue. We are contacting our customers to determine if it may be possible to replace some of the process chemicals currently in use with substitutes that may have less potential to cause or contribute to odors at the facility. We are also continuing to review operating procedures and process configurations in order to ensure that reasonable steps have been taken in the proper control of the subject chemicals.

As indicated in my telephone conversation with Caroline Shine on March 8, Semiconductor has requested the Tallahassee DER office for an extension on the submission of appropriate operating permit applications for this facility. It does not appear worthwhile for either DER or Semiconductor to put effort into obtaining operating permits that will be ultimately denied.

Please contact me at 729-5736 if I can provide any further assistance in this matter.

Yours truly,

Kent Smith

Kent Smith
Manager, Environmental Services

cc: D. R. Erdley
R. R. Sands
L. R. Hutker
J. R. Steiner

HARRIS SEMICONDUCTOR

April 19, 1990

Express Mail

Charles M. Collins, P.E.
Program Administrator
Air Resources Management
Central Florida District
Florida Department of Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

RE: Brevard County - AP
Warning Notice - OWN-AP-89-0151

Dear Mr. Collins:

This letter is submitted on behalf of Harris Corporation, Semiconductor Sector as an update of our odor abatement activities. It is my intention to send you regular updates on our activities until such a time as the problem is resolved. Please understand that this letter and subsequent correspondence in no way relieves us of any obligation under our continuing response activities concerning the above referenced warning notice. In addition, this information is a synopsis of a discussion I had with Caroline Shine on April 13th.

We have continued to attack the odor issue from several different angles. Within the production areas, we have begun to look at chemical substitution as a potential solution. We have established a testing protocol designed to remove certain phenol-based chemicals and substituting a chemical with less "odor potential." Due to customer testing requirements, this change should take approximately three to four months to implement.

Lids have also been installed on some of these phenol-based processes effective the week of April 9th. This will reduce the potential for emissions from these processes to contribute to the odor issue. We have also reduced the use of these processes from eight hours per shift to four hours per shift. This reduces the exposure of these baths to the exhaust system thereby reducing emissions. Unfortunately, these actions have also resulted in some difficult, although manageable, production issues.

Jacobs Engineering (JE) has completed three days of on-site sampling this week. The sampling was accomplished with an Organic Vapor Analyzer and will be used to determine what chemicals may be contributing to the odor issue. Results are due back late this week. JE also completed an initial pass of dispersion modeling but with limited results. These were faxed to Caroline last week. JE will be running additional dispersion models to add to the depth of this analysis.

Finally, JE ran dispersion models to determine the effects of additional stack height. The initial results, run at a 20 foot extension, showed that emissions could be reduced 75% at ground level. As such, we are requesting additional modeling with a ten foot extension. Our facilities department is currently obtaining quotes and determining appropriate engineering requirements for these stack additions.

The items in this memo will be discussed in more detail in our subsequent correspondence due to you by May 4th. Please contact me at 729-5736 if I can clarify any of the items discussed in this letter.

Yours truly,

Kent Smith
Manager, Environmental Services

cc: D. R. Erdley
R. R. Sands
L. R. Hutker
J. R. Steiner
C. Shine (FDER)
B. Mitchell (FDER)

HARRIS SEMICONDUCTOR
HARRIS · RCA · GE · INTERSIL

May 2, 1990

Charles M. Collins, P.E.
Program Administrator
Air Resources Management
Central Florida District
Florida Department of Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

RE: Brevard County - AP
Warning Notice - OWN-AP-89-0151

Dear Mr. Collins:

This letter is submitted on behalf of Harris Corporation, Semiconductor Sector (Semiconductor) as required by my correspondence of March 12, 1990. In that letter, I stated that Semiconductor would be completing two work items in an attempt to further define the odor issue as it pertains to this site. Those two items were the completion of a dispersion model for odor determination and the completion of on-site monitoring for odor characterization. These two items have been completed and are summarized below.

DISPERSION MODELING

As mentioned in previous correspondence, Jacobs Engineering (JE) applied the EPA and FDER-approved Industrial Source Complex (ISC) air dispersion model to eight specific emission sources on the Palm Bay facility. These sources were chosen as they represent emission points from operations in Buildings 51 and 54, our major point sources in terms of total air emissions. The analytical results from the ISC model are shown in the report accompanying this document.

Data input for the model was calculated by JE using the Solvent Mass Balance Report for 1988. As you are aware, this is the annual report detailing the purchase information, disposal methods and air emission data for solvents at the Semiconductor manufacturing facility. This data is considered to be the most reliable that is available for this type of analysis.

As explained in the JE report and given the assumptions of the ISC model, the data indicates that the Semiconductor scrubber stacks are not the source of the odor currently being experienced in the Palm Bay area. With one exception, the dispersion model shows that the compounds employed within the facility are not used in quantities sufficient to be detectable off the immediate property. As noted in the report, xylene could be a possible candidate for off-site detection given the chemical's low odor threshold and relatively high usage. This notwithstanding, there has been no indication to date that the odor of xylene is being detected at off-site locations.

FIELD ANALYSIS

In addition to the dispersion model results, the report also indicates the results of actual odor monitoring that was completed by JE during the investigation. As discussed in the correspondence of March 27, JE employed an Organic Vapor Analyzer (OVA) to determine if the odors were detectable with gas chromatograph analysis. As explained in the report, these analyses, conducted at three separate test locations for a period of one day each, showed no detectable concentrations of odor-producing chemicals that could be attributed to Semiconductor usage. This result is not surprising given the technological limitations of the GC (detectable to the low ppm range and the limited amount of constituents that can be analyzed) and the threshold at which the odors could be detected (in the ppb range).

In addition, JE completed additional research on the operational parameters of the scrubbers. The report confirms our previous discussions that the towers are currently being operated as efficiently as possible. As noted in the report, changing the packings would have little effect on unit efficiency. In addition, increased water flow, given the configuration of the units, would not significantly increase the efficiency of the scrubbers either.

As such, the attached JE report indicates that the odor cannot be specifically traced to the Semiconductor site. This has been determined through the use of both computer modeling and on-site testing. However, as noted in the JE report and previous correspondence, Semiconductor intends to continue its' odor abatement activities. These activities are to include efforts in the areas noted below. This department will be providing DER with regular updates, approximately every two weeks, on progress being made in these areas.

STACK EXTENSIONS

Semiconductor is in the process of the engineering review needed to establish design requirements to add stack height extensions for Buildings 51 and 54. As noted in JE's report, an extension of ten feet to these stacks will reduce ground level concentrations by approximately 65 percent. A twenty foot extension would yield a slightly higher percentage reduction in ground level concentrations but with significant additional safety and engineering concerns. Based on these concerns, Semiconductor will not implement twenty foot extensions.

COOLING TOWER INVESTIGATION

As stated in the JE report, the cooling towers may be contributing to the odor issue. This is supported by the fact that water from the wastewater treatment basin is, after additional treatment through a recycle program, used as process water for the cooling tower units. As you are aware, the water from the scrubbers is directed to the wastewater treatment basin. Although the specifics of the investigation will be determined later this week, analyses will be run on both influent and effluent water as well as the air being emitted from the cooling towers. The information obtained in the cooling tower investigation will be sent to you through regular updates.

INTERNAL PROCESS CHANGES

As mentioned in my recent correspondence, Semiconductor continues to investigate several internal changes that could reduce possible sources of odors. Due to initial concern that the odor was phenolic in nature, internal investigations have centered around phenol-based compounds. As such, we have identified the areas in which phenol-based compounds are employed. Further, suitable chemical alternatives that do not contain phenolic-based compounds are to be tested beginning in May. Should the testing yield positive results, it is expected that the switch to non-phenolic process chemicals could occur sometime within four months of identifying suitable alternatives. The time frame on this is dependant on customer approval of the switch to the new chemicals.

In addition to the "chemical" changes, Semiconductor has also made some process changes in the handling of the phenol-based products. Covers have now been put in place over the baths in an attempt to reduce the exposure of the chemical to the atmosphere. In addition, the phenolic-based baths are currently being heated for a total of four hours per shift as opposed to the original practice of continuous heating. This should also reduce the amount of material emitted to the atmosphere.

In order to determine the effectiveness of our abatement program, I would request that the Department keep Semiconductor informed of any complaints that may be received in the future. To facilitate this, a representative of Semiconductor will contact DER on a regular basis (every other week) in order to review the frequency, location and characterization of complaints that have been received from the community.

As can be seen by the above information, Semiconductor intends to continue working on appropriate odor abatement activities. To the extent that the odors are attributable to Semiconductor, we sincerely hope that our efforts will help reduce the incidence of complaints currently being received by the Department. Please contact me at (407) 727-5736 if I can provide any further information concerning these activities.

Kent Smith

Kent Smith
Manager, Environmental Services

cc: L.R. Hutker
J.R. Steiner
R.R. Sands
D.R. Erdley
B. Mitchell (FDER)
C. Shine (FDER)

Florida Department of Environmental Regulation

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

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary

April 27, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kent Smith, Environmental Manager
Harris Semiconductor
P. O. Box 883
Melbourne, Florida 32902-0883

Dear Mr. Smith:

Re: Amendment of Construction Permits:

AC 05-147321	Bldg. 54
-150794	59
-157786	51
-157787	62
-158237	63
-159484	58
-161706	57
-164544	55
-168460	60

The Department has reviewed Ms. Nancy Baldisserotto's letter received March 12, 1990, requesting that the above referenced air construction permits' expiration dates be extended. The Department is in agreement with the basic request and the following will be changed and added:

A. AC 05-147321, -150794, -157786, -157787, -158237, -159484, -161706, -164544 and -168460.

o Expiration Date

From: April 30, 1990
To: December 31, 1990

B. AC 05-150794

o Specific Condition

11. (New)
If the strategies relating to Building 59, as outlined in Mr. Kent Smith's letters dated March 12 and April 19, 1990, do not eliminate objectionable odor complaints, then the entire facility, on a per building basis, will have to be evaluated for eliminating objectionable odors.

C. Attachments to be Incorporated

- o Ms. Nancy Baldisserotto's letter received March 12, 1990.
- o Mr. Kent Smith's letter dated March 12, 1990.
- o Mr. Kent Smith's letter dated April 19, 1990.

This letter must be attached to your air construction permits, as referenced above, and shall become a part of the permits.

Sincerely,

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

SS/BM/plm

Attachment

c: C. Collins, Central Dist.
N. Baldisserotto, HS

HARRIS SEMICONDUCTOR
HARRIS · RCA · GE · INTERSIL

RECEIVED
MAR 12 1990
DER-BAQM

March 8, 1990

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

Subject: Extension of Consolidated Construction Permits
Harris Semiconductor, Melbourne

Permit Nos.	Bldg.
AC 05-147321	54
AC 05-150794	59
AC 05-157786	51
AC 05-157787	62
AC 05-158237	63
AC 05-159484	58
AC 05-161706	57
AC 05-164544	55
AC 05-168460	60

Dear Mr. Fancy:

In accordance with F.A.C. rule 17-4.09 and Specific Condition No. 13 of the above mentioned air permits, the purpose of this letter is to request an extension of the expiration dates until December 30th, 1990.

Harris Semiconductor and the Orlando FDER are currently undergoing negotiations concerning an objectionable odor warning notice issued to the Palm Bay site in December (warning notice OWN-AP-89-0151.) The Orlando FDER has indicated that Semiconductor will not be issued operating permits in June if the odor issue is not resolved by that time. If the Department requires Semiconductor to submit applications for operating permits in March which it intends to deny because a solution to this issue has not been fully implemented by June, Semiconductor will be forced to initiate administrative litigation or operate without permits. If Semiconductor and the Agency are both working to resolve this issue, you may agree that this dilemma would not be desirable from the perspective of either Semiconductor or the Department.

To avoid an unnecessary permitting crisis while the Department and Semiconductor reach agreement on the means of solving the odor issue, Semiconductor is requesting that the Department extend the expirations dates by a period of six (6) months. This is currently the expiration date of the construction permit for building 4 (permit no. AC 05-165757.)

If this extension is granted, operating permit applications for all applicable buildings on the site will be submitted by September 30th, 1990. Please note that this will not affect the submittal of the annual operating reports and mass balance information for 1989, which is currently due by March 31st.

Please feel free to phone me at (407) 729-4061 if you have any questions.

Sincerely, Nancy Baldisserotto

Nancy Baldisserotto
Senior Environmental Engineer
Environmental Services

cc: T. Sawicki
B. Mitchell

\extnrqst.2

HARRIS SEMICONDUCTOR
HARRIS · RCA · GE · INTERSIL

March 12, 1990

Express Mail

Charles M. Collins, P.E.
Program Administrator
Air Resources Management
Central Florida District
Florida Department of Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

RE: Brevard County - AP
Warning Notice - OWN-AP-89-0151

Dear Mr. Collins:

This letter is submitted on behalf of Harris Corporation, Semiconductor Sector ("Semiconductor") to follow-up on our letter of February 16. In that letter, it was stated that Semiconductor would, within 30 days, submit a schedule outlining the activities that will be undertaken to identify reasonable and appropriate solutions to the odor issue.

As mentioned in previous correspondence, Jacobs Engineering Group, Inc. ("Jacobs") has been retained by Semiconductor to facilitate the odor issue investigation. In a recent meeting, Jacobs recommended a revision of the suggested activities as outlined in the February 16 letter. As such, Jacobs has recommended that the odor investigation continue as follows:

Work Item One : Chemical inventory and historical stack monitoring information will be reviewed and used in a dispersion model to determine areas that may be affected by odors. This change was recommended by Jacobs as opposed to running stack analyses on all emission points from Bldg. 54. Jacobs feels that previous monitoring activities will provide the information needed for the dispersion modeling.

This item is scheduled to be completed by March 30, 1990.

Work Item Two: Through the use of an Organic Vapor Analyzer in GC mode, investigate the level of constituents present at likely "odor hot spots." These areas would be determined through the use of the computer dispersion model outlined in Work Item One.

This item is scheduled for completion by April 27, 1990.

This is the plan of action Semiconductor intends to pursue.

Subsequent to these activities, Semiconductor will submit a completed report, by May 4, 1990, detailing the information obtained during completion of the Work Items. This report will include any proposed modifications or process changes.

To supplement these activities, Semiconductor has already contracted with Air Consulting and Engineering (ACE) to conduct GC/MS sampling from one of the stacks at Building 54. The stack chosen is the most likely candidate to be contributing to the alleged odor problem. Due to the prohibitive cost of running complete analyses on all stacks ($60,000 per stack for 24 hours of sampling as quoted by Jacobs), we chose to sample one stack for a period of 10 operating hours. This will give us total coverage of first shift activities along with 1 hour on either side of shift changes. This data will subsequently be utilized in the dispersion model to add further background information to the investigation.

In addition to these activities, Semiconductor has taken a close look at the processes within the Building 54 wafer fabrication area that may be a source of the odor issue. We are contacting our customers to determine if it may be possible to replace some of the process chemicals currently in use with substitutes that may have less potential to cause or contribute to odors at the facility. We are also continuing to review operating procedures and process configurations in order to ensure that reasonable steps have been taken in the proper control of the subject chemicals.

As indicated in my telephone conversation with Caroline Shine on March 8, Semiconductor has requested the Tallahassee DER office for an extension on the submission of appropriate operating permit applications for this facility. It does not appear worthwhile for either DER or Semiconductor to put effort into obtaining operating permits that will be ultimately denied.

Please contact me at 729-5736 if I can provide any further assistance in this matter.

Yours truly,

Kent Smith

Kent Smith
Manager, Environmental Services

cc: D. R. Erdley
R. R. Sands
L. R. Hutker
J. R. Steiner

HARRIS SEMICONDUCTOR
HARRIS · RCA · GE · INTERSIL

April 19, 1990

Express Mail

Charles M. Collins, P.E.
Program Administrator
Air Resources Management
Central Florida District
Florida Department of Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

RE: Brevard County - AP
Warning Notice - OWN-AP-89-0151

Dear Mr. Collins:

This letter is submitted on behalf of Harris Corporation, Semiconductor Sector as an update of our odor abatement activities. It is my intention to send you regular updates on our activities until such a time as the problem is resolved. Please understand that this letter and subsequent correspondence in no way relieves us of any obligation under our continuing response activities concerning the above referenced warning notice. In addition, this information is a synopsis of a discussion I had with Caroline Shine on April 13th.

We have continued to attack the odor issue from several different angles. Within the production areas, we have begun to look at chemical substitution as a potential solution. We have established a testing protocol designed to remove certain phenol-based chemicals and substituting a chemical with less "odor potential." Due to customer testing requirements, this change should take approximately three to four months to implement.

Lids have also been installed on some of these phenol-based processes effective the week of April 9th. This will reduce the potential for emissions from these processes to contribute to the odor issue. We have also reduced the use of these processes from eight hours per shift to four hours per shift. This reduces the exposure of these baths to the exhaust system thereby reducing emissions. Unfortunately, these actions have also resulted in some difficult, although manageable, production issues.

Jacobs Engineering (JE) has completed three days of on-site sampling this week. The sampling was accomplished with an Organic Vapor Analyzer and will be used to determine what chemicals may be contributing to the odor issue. Results are due back late this week. JE also completed an initial pass of dispersion modeling but with limited results. These were faxed to Caroline last week. JE will be running additional dispersion models to add to the depth of this analysis.

HARRIS CORPORATION SEMICONDUCTOR SECTOR P.O. BOX 883 MELBOURNE, FL 32902-0883 407-724-7000 FAX 407-729-5691 TWX 510-959-6259

Finally, JE ran dispersion models to determine the effects of additional stack height. The initial results, run at a 20 foot extension, showed that emissions could be reduced 75% at ground level. As such, we are requesting additional modeling with a ten foot extension. Our facilities department is currently obtaining quotes and determining appropriate engineering requirements for these stack additions.

The items in this memo will be discussed in more detail in our subsequent correspondence due to you by May 4th. Please contact me at 729-5736 if I can clarify any of the items discussed in this letter.

Yours truly,

Kent Smith
Manager, Environmental Services

cc: D. R. Erdley
R. R. Sands
L. R. Hutker
J. R. Steiner
C. Shine (FDER)
B. Mitchell (FDER)

Florida Department of Environmental Regulation

Central District ● 3319 Maguire Boulevard, Suite 232 ● Orlando, Florida 32803-3767 ● 407-894-7555

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary
Alex Alexander, Deputy Assistant Secretary

March 21, 1990

OCD-AP-90-0923

A T & T
9333 South John Young Parkway
Orlando, Florida 32819

Attention: D. J. Wagner, Environmental Engineer

Orange County - AP
Very Large Scale Integrated
Circuits Plant - AO48-134738
Requested Permit Change

Dear Mr. Wagner:

A review of your February 19, 1990 letter appears to indicate the requested changes to the permit will require a substantial review. Therefore in accordance with Rule 17-4.050(7) F.A.C. (copy enclosed), application fees are required. Enclosed is a fee schedule to assist in determining the correct fee amounts. Note that the applications must be signed by the applicant, Mr. McGowan or a properly authorized alternate. Should engineering information be provided, a Florida registered professional engineer must also sign the application.

The requested changes appear to be items for which a change to the construction permit AC48-38713 are necessary before the operating permit can be changed. Therefore an application to address these changes should be submitted to the Central Air Permitting staff in Tallahassee. Our Central District office can then consider requested changes to the operating permit.

If you have any questions, please call John Turner at 407-894-7555 or write to me at the above address.

Sincerely,

Alan D Zahm

Alan D. Zahm, P.E.
Permitting Engineer
Air Resources Management

ADZ:jtj

cc: Bill Thomas, Tallahassee
Dennis Nester, Orange County EPD

Enclosures (2)

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

	Initial / Date
1. TO: (NAME, OFFICE, LOCATION) Bill Thomas PE III	Initial / Date
2. AIR BAQM	Initial / Date
3. CAPS Rm: 306G	Initial / Date
4. TALL	Initial / Date

RECEIVED
MAR 26 1990
DER - BAQM

REMARKS:

2 attachments

Bruce
FYI

INFORMATION

- Review & Return
- Review & File
- Initial & Forward

DISPOSITION

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

FROM: C.M. Collins
Air Program
Central Dist.

DATE 3/23/90

PHONE

(c) Upon receipt of the proper application fee, the permit processing time requirements of Sections 120.60(2) and 403.0876, F.S., shall begin.

(d) If the applicant does not submit the required fee within ten days of receipt of written notification, the Department shall either return the unprocessed application or arrange with the applicant for the pick up of the application.

(6) Any substantial modification to a complete application shall require an additional processing fee determined pursuant to the schedule set forth in Section 17-4.050, F.A.C., and shall restart the time requirements of Sections 120.60 and 403.0876, F.S. For purposes of this Subsection, the term "substantial modification" shall mean a modification which is reasonably expected to lead to substantially different environmental impacts which require a detailed review.

(7) Modifications to existing permits proposed by the permittee which require substantial changes in the existing permit or require substantial evaluation by the Department of potential impacts of the proposed modifications shall require the same fee as a new application for the same time duration except for modification under chapter 17-45, F.A.C.

Specific Authority: 403.021, 403.031, 403.061, 403.087, 403.088, F.S.
Law Implemented: 403.021, 403.031, 403.061, 403.087, 403.088, 403.722, 403.861(7), 403.921, F.S.
History: New 5-17-72, Amended 6-19-74, 7-8-82, 11-15-87, 8-31-88, 10-3-88, 4-4-89. Previously numbered as 17-4.05.

17-4.055 Permit Processing.

(1) Within 30 days after receipt of an application for a permit and the correct processing fee the Department shall review the application and shall request submittal of additional information the Department is authorized by law to request.

(2) If the applicant believes any Department request for additional information is not authorized by law or rule, the applicant may request a hearing pursuant to Section 120.57, Florida Statutes.

(3) Within 30 days after receipt of such additional information, the Department shall review it and may request only that information needed to clarify such additional information or to answer new questions raised by or directly related to such additional information.

(4) If the applicant believes the request of the Department for such additional information is not authorized by law or rule, the Department, at the applicant's request, shall begin to process the permit application. Such a request by the applicant shall be in writing and shall be clearly labelled as a request for the Department to process the application. The applicant's request shall state the reasons why the applicant believes the Department's request for additional information is not authorized by law or rule. The applicant shall clearly state that the applicant requests the Department to process the application without that information. The applicant's request shall be submitted to the Department office which made the request.

(5) Permits shall be approved or denied within 90 days after receipt of the original application, the last item of timely requested additional material, or the applicant's written request to begin processing the permit application, whichever occurs last.

(6) The procedures in this section do not apply to hazardous waste facility permitting under Florida Administrative Code Rule 17-30, or to other permitting for which there are other specific procedures.

Specific Authority: 403.161, 403.087, F.S.
Law Implemented: 403.021, 403.061, 403.062, 403.087, 403.0876, F.S.
History: New 12-3-84, Amended 8-31-88.

17-4.060 Consultation. The Applicant, or his engineer, is encouraged to consult with Department personnel before submitting an application, or at any other time concerning the operation, construction, expansion, or modification of any installation or concerning the required pollution control devices or system, the efficiency of such devices or system, or the pollution problem related to the installation. However, any representation by the Department shall not relieve any person from any requirement of Florida law.

Specific Authority: 403.021, 403.031, 403.061, 403.088, F.S.
Law Implemented: 403.021, 403.031, 403.061, 403.087, 403.088, F.S.
History: New 5-17-72, Amended 8-31-88. Previously numbered as 17-4.06.

17-4.070 Standards of Issuing or Denying Permits; Issuance; Denial.

(1) A permit shall be issued to the applicant upon such conditions as the Department may direct, only if the applicant affirmatively provides the Department with reasonable assurance based on plans, test results, installation of pollution control equipment, or other information, that the construction, expansion, modification, operation, or activity of the installation will not discharge, emit, or cause pollution in contravention of Department standards or rules. However, for discharges of wastes to water, the Department may issue temporary operation permits under the criteria set forth in Section 403.088(3), F.S.

(2) If, after review of the application and all the information, the Department determines that the applicant has not provided reasonable assurance that the construction, modification, expansion, or operation of the installation will be in accord with applicable laws or rules, including rules of approved local programs, the Department shall deny the permit.

(3) The Department may issue any permit with specific conditions necessary to provide reasonable assurance that Department rules can be met.

(4) No Department permits shall be issued for a term of more than five (5) years unless otherwise specified by statute, rule, or order of the Department. However, construction permits for air pollution sources may be issued for a period of time as necessary.

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Permit Fees

F.A.C. Chapter 17-4.050
(Effective October 1, 1988)

DIVISION OF AIR RESOURCES MANAGEMENT

AIR POLLUTION SOURCE PERMITS	Fee
Construction Permits	
Emissions of 100 or more tons/yr. requiring Prevention of Significant Deterioration (PSD) or Nonattainment Area (NAA) new source review permit	$5000
Emissions of 100 or more tons/yr. but not requiring a PSD or NAA new source review permit	$2500
Emissions of 50 or more tons/yr. but less than 100 tons/yr.	$1000
Emissions of 25 or more tons/yr. but less than 50 tons/yr.	$ 500
Emissions less than 25 tons/yr.	$ 200
Operating Permits	
Emissions measured by stack sampling	$1500
Emissions measured by other means	$ 750
Measuring of emissions not required	$ 250

Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794
904-436-8300

Northeast District
3426 Bills Rd.
Jacksonville, Florida 32207
904-798-4200

Central District
3319 Maguire Blvd. Suite 232
Orlando, Florida 32803-3767
407-894-7555

Southwest District
4520 Oak Fair Blvd.
Tampa, Florida 33610-7347
813-623-5561

South District
2269 Bay St.
Fort Myers, Florida 33901-2696
813-332-2667

Southeast District
1900 S. Congress Ave., Suite A
West Palm Beach, Florida 33406
407-964-9668

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

CENTRAL FLORIDA DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803-3767

Permittee:
A T & T Technologies, Inc.
9333 John Young Parkway
Orlando, FL 32819

Attention: D. L. McGowan, Dept. Chief Engineering

I. D. Number:
Permit/Certification
Number: AO48-134738
Date of Issue:
Expiration Date: 9/28/92
County: Orange
Latitude/Longitude:
28°30'36"N/81°24'57"W
UTM: 17-459.3 KmE
UTM: 3153.6 KmN
Project: Very Large Scale Integrated Circuits Plant

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

The permittee can operate a Very Large Scale Integrated Circuits Plant to manufacture very large scale integrated circuits on a silicon substrate and includes the following:

A. Steam Boilers No. 1 and 2 - Each is a Johnston, 500 HP fired by Natural Gas or No. 2 Fuel Oil only at a maximum heat input rate of 15 MMBTU/hour.

B. Vapor Degreaser - Manufactured by Baron - Blakeslee, Model MVR-425, equipped with thermostats and a chiller - located in Core Area B, Building 30.

C. Twelve Half Clean Rooms - Designated as A_1, A_2, B_1, B_2, C_1, C_2, D_1, D_2, E_1, E_2, F_1, and F_2, are located in Building 30 and equipped as follows:

Control Device	Sources Controlled	Emissions
A. Acid Scrubber SCR 30-1, Ceilcote Model HRP100, 10,500 ACFM, 97% removal efficiency.	A_1, A_2, B_1, B_2, C_1, C_2, F_1, F_2	acids & alkalis

Permittee:
A T & T Technologies, Inc.
9333 John Young Parkway
Orlando, FL 32819

Attention: D. L. McGowan, Dept. Chief Engineering

I. D. Number:
Permit/Certification Number: AO48-134738
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Latitude/Longitude: 28°30'36"N/81°24'57"W
UTM: 17-459.3 KmE
UTM: 3153.6 KmN
Project: Very Large Scale Integrated Circuits Plant

Control Device	Sources Controlled	Emissions
b. Acid Scrubber SCR 30-2, Ceilcote Model HRP 350, 32,650 ACFM, 97% removal efficiency.	C_2, D_1, D_2, E_1, E_2, F_1, F_2	acids & alkalis
c. Acid Scrubber SCR 30-3, Ceilcote, Model HRP-100, 10,000 ACFM, 97% removal efficiency.	Core Area C and Back Grinding Area	acids & alkalis
d. Carbon Absorber 30-2, Baron-Blakeslee Model CAH6-8-3T, 3750 ACFM.	C_1, C_2	VOC

D. Three Ammonium Hydroxide Waste Treatment Tanks - located in Building 41 equipped with an Ammonia Scrubber which is a Croll-Reynolds Model 24T-6H, 800 ACFM, and a removal efficiency of 97%.

These sources are located at the A T & T Technologies, Inc. facility at 9333 John Young Parkway, Orlando, Orange County, Florida.

General Conditions are attached to be distributed to the permittee only.

PERMITTEE:
A T & T Technologies, Incorporated
Attention: D. L. McGowan, Dept. Chief Engineering

I. D. Number:
Permit/Certification Number: AO48-134738
Date of Issue:
Expiration Date: 9/28/92

SPECIFIC CONDITIONS:

1. No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor pursuant to Rule 17-2.620(2) F.A.C. Objectionable odor is defined as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance pursuant to Rule 17-2.100(131) F.A.C. Odor is defined as a sensation resulting from stimulation of the human olfactory organ pursuant to Rule 17-2.100(132) F.A.C.

2. There shall be no discharges of liquid effluents or contaminated runoff to surface or ground water without prior approval from this office.

3. All unconfined emissions of particulate matter generated at this site shall be adequately controlled. (Rule 17-2.610(3), F.A.C.) Area must be watered down should unconfined emissions occur.

4. This permit does not preclude compliance with any applicable local permitting requirements and regulations.

5. This source is permitted to operate 8,400 hours/year.

6. Each Boiler will be fired with Natural Gas or No. 2 Fuel Oil only.

7. The permitted heat input rate for each Boiler is 15 MMBTU/hr.

8. <u>BACT Determined by DER</u>

   The sulfur content of the No. 2 Fuel Oil shall not exceed 0.5 percent by weight.

PERMITTEE:
A T & T Technologies, Incorporated

Attention: D. L. McGowan, Dept. Chief Engineering

I. D. Number:
Permit/Certification Number: AO48-134738
Date of Issue:
Expiration Date: 9/28/92

SPECIFIC CONDITIONS:

9. The emission limitation for each Boiler is set forth in Rule 17-2.600(6), F.A.C., and the compliance test must be conducted in accordance with DER Method #9 (Rule 17-2.700(6)(a)9. F.A.C.) at least 90 days prior to permit expiration date.

10. The maximum allowable VOC emissions from the organic solvent degreasers shall be 41.3 tons per year.

11. Rule 17-2.620(1)(a)FAC states that no person shall store, pump, handle, process, load, unload or use in any process or installation volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the department. To comply, procedures to minimize pollutant emissions should include but shall not be limited to the following:

    a) tightly cover or close all VOC containers when they are not in use,

    b) tightly cover, where possible, all open troughs, basins, baths, tanks, etc. when they are not in use,

    c) maintain all piping, valves, fittings, etc. in good operating condition,

    d) prevent excessive air turbulence across exposed VOC's,

    e) immediately confine and clean up VOC spills and make certain wastes are placed in closed containers for reuse, recycling or proper disposal, and

    f) maintain a monthly accounting of each VOC based on beginning and ending inventories, deliveries, shipments, etc.,

    g) the organic solvent degreasers shall be equipped with covers that are readily opened and closed, a drain rack, and visible fill line.

PERMITTEE:
A T & T Technologies, Incorporated

Attention: D. L. McGowan, Dept. Chief Engineering

I. D. Number:
Permit/Certification Number:
AO48-134738
Date of Issue:
Expiration Date: 9/28/92

SPECIFIC CONDITIONS:

12. Compliance with the VOC emissions limit for the organic solvent degreasers shall be determined through the use of a material balance of the organic solvents purchased and reclaimed. The difference will be assumed to be emissions to the ambient air.

13. Compliance for the boilers shall be determined from the records of annual operating hours and amounts and type of fuel usage.

14. Each calendar year on or before March 1, submit for this facility, an Annual Operations Report DER Form 17-1.202(6) for the preceding calendar year in accordance with Rule 17-4.14, F.A.C.

15. Hazardous wastes generated in connection with any of the sources at this facility must be disposed of in accordance with Rule 17-30, F.A.C.

16. When the department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in Chapter 17-2, F.A.C. or in this permit is being violated, it may require the owner or operator of the source to conduct compliance tests which identify the nature and quantity of pollutant emissions from the source and to provide a report on the results of said tests to the department.

17. An operation permit renewal must be submitted at least 60 days prior to the expiration date of this permit (Rule 17-4.09, F.A.C.).

ISSUED 10-14-87

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

cmc

A. Alexander
District Manager
3319 Maguire Boulevard
Suite 232
Orlando, Florida 32803
(305) 894-7555

GD3 rec'd 2/28/90

AT&T

Orlando Plant
Microelectronics

9333 S. John Young Parkway
Orlando, FL 32819
407 345-6000

RECEIVED FEB 1990 CENTRAL FLORIDA DISTRICT

February 19, 1990

Mr. Charles Collins
Air Section
Florida Department of Environmental Regulation
Central Florida District
3319 Maguire Boulevard
Suite 322
Orlando, FL 32803-3767

Subject: Air Permit A048-134738

Dear Mr. Collins:

In October of 1987, the AT&T Microelectronics Orlando Plant was issued Air Permit # A048-134738 for operation of a Very Large Scale Integrated Circuit (VLSIC) Plant.

During a recent review of the above referenced permit, several inconsistencies and discrepancies were discovered. It is AT&T's intention to eliminate and/or correct these issues.

The intent of this letter is to identify the issues thereby initiating discussion between DER and AT&T on corrective action, if any is required. Subsequent to determining any courses of action, AT&T will submit appropriate applications and associated fees as required. Below is a listing of the individual issues:

1. Reference: Permit Item C - Control Devices for 12 Half Clean Rooms

   In December 1987, a fourth acid scrubber, SCR 30-4, was installed and started-up. The Ceilcote Acid Scrubber Model # HRP-265, rated at 26500 CFM with 97% efficiency, was added to supplement capacity and flexibility of the existing three scrubbers. The original design of 3 acid scrubbers was insufficient to handle the actual loading present in 1987. AT&T did not submit an application for a permit modification for this additional scrubber. Although the addition of this scrubber improved the pollution control efficiency of the 12 half clean rooms, a permit application should have been submitted.

2. Reference: Permit Item C (d) - Control Devices for 12 Half Clean Rooms

During the permit application process in 1987, DER was provided with information regarding Carbon Absorber 30-2. The information provided to DER listed the status of the unit as "inactive". The permit, as written, does not specify the status of unit. The exhaust does pass through the activated carbon bed, but the absorber is not currently and was not at the time of the permit application on a routine regeneration schedule. The original chemical intended for absorption in this unit was eliminated from our manufacturing process prior to start-up of the Plant. The substitute chemical and related exhaust volumes did not warrant the operation of this equipment. Therefore, the absorber remained in place but was not maintained. A clarification of the status of this control device in the permit is recommended.

3. Reference: General

The manufacturing process at the AT&T Facility utilizes several hundred individual processing facilities to perform the fabrication of the integrated circuit device. The facilities use a variety of chemicals and gases. Exhaust flows from these facilities tie in to the Plant's main exhaust systems which eventually lead to exhaust stacks, scrubbers, etc. Because of continual changes in technology, equipment quality, and production capacity needs, the Plant experiences a continual turnover of equipment. Many times, several additions and deletions occur in a single week. Although the individual facilities are in theory "pollution sources", they do utilize the existing permitted exhaust stacks. To comply with the letter of the permit, the permittee is required to file an application for all new pollution sources. Specific provisions for handling this continual turnover of equipment were not made in the original permit conditions. During the original permit application process in 1987, a series of 46 drawings was provided to DER detailing the pollution sources and associated exhaust systems in operation at the Plant at that time. As stated above, since that time, significant changes have occurred. Three issues exist. First, DER does not have an updated set of pollution source and exhaust system drawings. Secondly, a method for providing DER with this information in the future must be established.

Thirdly, the method of notification should be specifically included in the permit language. Obviously, DER's requirements will dictate the method of notification. However, considering that the pollution sources are added and deleted to existing exhaust systems, and considering the frequency of changes that occur, allow me to propose that a periodic (quarterly or yearly) update be made to DER detailing all revisions. AT&T would provide DER a tabular listing of all pollution sources by exhaust stack. The periodic updates would then supplement the original information. Facility drawings can be provided as needed but are somewhat complex and would be less informative and more tedious than the proposed listing.

4. Reference: Permit Item D - Ammonia Scrubber

The permit indicates the above referenced Ammonia Scrubber as being associated with three Ammonium Hydroxide Waste Treatment Tanks. In actuality, the Scrubber is associated with three Fluoride Waste Treatment Tanks. The Scrubber is intended to treat ammonia gas generated during the treatment of Ammonium Fluoride Waste. Ammonia can out-gas during the fluoride precipitation process. The Ammonium Treatment Tanks are located next to the Fluoride Treatment Tanks and do receive the effluent from the scrubber. The permit language should be corrected.

5. Reference: Permit Specific Condition # 5 - Operating Hours

This specific condition permits the AT&T Facility to operate 8400 hours/year. The AT&T Orlando Plant operates a minimum of 352 days per year and 21 to 24 hours per day. Additional work days and exact operating hours are dependent on production work load. Depending on the exact hours worked per day, based on 352 days/year, the AT&T Facility could exceed the 8400 hours/year permit condition. Since these hours are not tracked, compliance to the permit condition is not easily determined. Since this does not appear to be a significant issue with respect to air pollution control, AT&T requests an increase in permitted operating hours to 8600 hours/year. This allows the facility to work 24 hours/day, 51 weeks/year (357 days).

In addition to the above permit issues, the Annual Air Emission report for 1988 submitted to DER in February 1989 contained incorrect VOC emission levels. The significant increase in VOC emissions from 1986 and 1987 to 1988 without a corresponding significant increase in raw chemical usage prompted a reevaluation on our part of the 1988 VOC calculation. In general, the methodology approved for use by AT&T (mass balance) is extremely dependent on the water content of outgoing waste material. The 1988 calculation duplicated the water content values used in the 1987 calculation without evaluating the overall circumstances. The 1988 VOC emissions have been recalculated. The corrected VOC emission for 1988 is 19.5 tons. This updated emission level is consistent, on a relative basis, with previous VOC emission levels reported.

6. A final issue on the permit related to VOC emission calculations. Permit condition #10 specifies that the maximum VOC emissions from organic solvent degreasers shall be 41.3 tons per year. A significant portion (> 50%) of the VOC emissions reported by AT&T are not from "traditional" degreasing operations. AT&T utilizes solvents to apply, strip or manipulate a variety of photoresistant coatings on the integrated circuit substrate material. This process is an integral part of semiconductor manufacturing. AT&T is not objecting to reporting solvent emissions from these processes, however, DER may have a need to more specifically understand the sources of the VOC emissions. If so, permit language should be modified accordingly.

After you have had a chance to review this information, please contact me to discuss corrective actions as necessary. Obviously, I will be more than happy to meet with you or your staff and provide any additional information or details you desire.

I can be reached at (407) 345-6514.

Thank you for your assistance.

Doug Wagner

D. J. Wagner
Environmental Engineer

:dmc

Copy to:
S. R. Fleming - 0280
R. C. Lister - 0200
W. B. Marshall - 0260

Florida Department of Environmental Regulation

Central District • 3319 Maguire Boulevard, Suite 232 • Orlando, Florida 32803-3767 • 407-894-7555

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary
Alex Alexander, Deputy Assistant Secretary

March 13, 1990

OCD-AP-90-0897

Mr. Kent Smith, Manager
Environmental Services
Harris Semi-conductor
Post Office Box 883
Melbourne, Florida 32902-0883

Brevard County - AP
Harris Semi-conductor, Bldg 54
Objectionable Odors
OWN-AP-89-0151

Dear Mr. Smith:

We are in receipt of your February 16, 1990 letter which states that your pollution control device is ineffective in controlling the odors from the plant and the possibility of operating without permits should your application for an operating permit be denied.

First, I would like to comment that only Mr. A. Alexander, Deputy Assistant Secretary, from this office, has the authority to deny a permit. However, the Florida Administrative Code Rule 17-4.070(1) states that a permit shall be issued to the applicant upon such conditions as the Department may direct, only if the applicant affirmatively provides the Department with reasonable assurance based on plans, test results, installation of pollution control equipment, or other information, that the construction, expansion, modification, operation or activity of the installation will not discharge, emit, or cause pollution in contravention of Department standards or rules.

Should Mr. Alexander decide to deny your application, you have a right to appeal for a hearing. Your rights will be set forth in writing should an intent to deny be sent to you.

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Now to address the issues and the reason for our meeting.

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2. Objectionable odors are prohibited by Chapter 17-2 F.A.C.

3. Objectionable odors are also a violation of your permit Specific Condition No. 4.

4. The Department continues to receive complaints about odors from Harris Semi-conductor.

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Within 10 days from the receipt of this letter, please submit your short term plan of action to abate these objectionable odors. Also provide the Department with a detailed list of what was checked and examined on your scrubber, and touch upon the ten suggestions we provided.

Sincerely,

Charles M. Collins

Charles M. Collins, P.E.
Program Administrator
Air Resources Management

CMC:csj

cc: D. R. Erdley
R. R. Sands
B. Thomas, CAPS
B. Mitchell, CAPS

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION)	Initial / Date
B. Mitchell Eng. TD	
2. Air BAQM	Initial / Date
3. Capps	Initial / Date
4. Tally	Initial / Date

REMARKS:

INFORMATION

- Review & Return
- Review & File
- Initial & Forward

RECEIVED
MAR 19 1990
DER - BAQM

DISPOSITION

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

FROM: CM Callens
Air Program
Central District

DATE 3/16/90

PHONE

Florida Department of Environmental Regulation

Central District • 3319 Maguire Boulevard, Suite 232 • Orlando, Florida 32803-3767 • 407-894-7555

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary
Alex Alexander, Deputy Assistant Secretary

March 13, 1990

OCD-AP-90-0897

Mr. Kent Smith, Manager
Environmental Services
Harris Semi-conductor
Post Office Box 883
Melbourne, Florida 32902-0883

Brevard County - AP
Harris Semi-conductor, Bldg 54
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Sincerely,

Charles M. Collins

Charles M. Collins, P.E.
Program Administrator
Air Resources Management

CMC:csj

cc: D. R. Erdley
R. R. Sands
B. Thomas, CAPS
B. Mitchell, CAPS

PM
3-9-90
Melbourne, FL

HARRIS SEMICONDUCTOR
HARRIS · RCA · GE · INTERSIL

RECEIVED
MAR 12 1990
DER-BAQM

March 8, 1990

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

Subject: Extension of Consolidated Construction Permits
Harris Semiconductor, Melbourne

Permit Nos.	Bldg.
AC 05-147321	54
AC 05-150794	59
AC 05-157786	51
AC 05-157787	62
AC 05-158237	63
AC 05-159484	58
AC 05-161706	57
AC 05-164544	55
AC 05-168460	60

Dear Mr. Fancy:

In accordance with F.A.C. rule 17-4.09 and Specific Condition No. 13 of the above mentioned air permits, the purpose of this letter is to request an extension of the expiration dates until December 30th, 1990.

Harris Semiconductor and the Orlando FDER are currently undergoing negotiations concerning an objectionable odor warning notice issued to the Palm Bay site in December (warning notice OWN-AP-89-0151.) The Orlando FDER has indicated that Semiconductor will not be issued operating permits in June if the odor issue is not resolved by that time. If the Department requires Semiconductor to submit applications for operating permits in March which it intends to deny because a solution to this issue has not been fully implemented by June, Semiconductor will be forced to initiate administrative litigation or operate without permits. If Semiconductor and the Agency are both working to resolve this issue, you may agree that this dilemma would not be desirable from the perspective of either Semiconductor or the Department.

To avoid an unnecessary permitting crisis while the Department and Semiconductor reach agreement on the means of solving the odor issue, Semiconductor is requesting that the Department extend the expirations dates by a period of six (6) months. This is currently the expiration date of the construction permit for building 4 (permit no. AC 05-165757.)

HARRIS CORPORATION SEMICONDUCTOR SECTOR P.O. BOX 883 MELBOURNE, FL 32902-0883 407-724-7000 FAX 407-729-5691 TWX 510-959-6259

If this extension is granted, operating permit applications for all applicable buildings on the site will be submitted by September 30th, 1990. Please note that this will not affect the submittal of the annual operating reports and mass balance information for 1989, which is currently due by March 31st.

Please feel free to phone me at (407) 729-4061 if you have any questions.

Sincerely, Nancy Baldisserotto

Nancy Baldisserotto
Senior Environmental Engineer
Environmental Services

cc: T. Sawicki
B. Mitchell

\extnrqst.2

HARRIS SEMICONDUCTOR

RECEIVED
MAR 22 1990
DER - BAQM

March 12, 1990

Express Mail

Charles M. Collins, P.E.
Program Administrator
Air Resources Management
Central Florida District
Florida Department of Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

RE: Brevard County - AP
Warning Notice - OWN-AP-89-0151

Dear Mr. Collins:

This letter is submitted on behalf of Harris Corporation, Semiconductor Sector ("Semiconductor") to follow-up on our letter of February 16. In that letter, it was stated that Semiconductor would, within 30 days, submit a schedule outlining the activities that will be undertaken to identify reasonable and appropriate solutions to the odor issue.

As mentioned in previous correspondence, Jacobs Engineering Group, Inc. ("Jacobs") has been retained by Semiconductor to facilitate the odor issue investigation. In a recent meeting, Jacobs recommended a revision of the suggested activities as outlined in the February 16 letter. As such, Jacobs has recommended that the odor investigation continue as follows:

Work Item One : Chemical inventory and historical stack monitoring information will be reviewed and used in a dispersion model to determine areas that may be affected by odors. This change was recommended by Jacobs as opposed to running stack analyses on all emission points from Bldg. 54. Jacobs feels that previous monitoring activities will provide the information needed for the dispersion modeling.

This item is scheduled to be completed by March 30, 1990.

Work Item Two: Through the use of an Organic Vapor Analyzer in GC mode, investigate the level of constituents present at likely "odor hot spots." These areas would be determined through the use of the computer dispersion model outlined in Work Item One.

This item is scheduled for completion by April 27, 1990.

This is the plan of action Semiconductor intends to pursue.

Subsequent to these activities, Semiconductor will submit a completed report, by May 4, 1990, detailing the information obtained during completion of the Work Items. This report will include any proposed modifications or process changes.

To supplement these activities, Semiconductor has already contracted with Air Consulting and Engineering (ACE) to conduct GC/MS sampling from one of the stacks at Building 54. The stack chosen is the most likely candidate to be contributing to the alleged odor problem. Due to the prohibitive cost of running complete analyses on all stacks ($60,000 per stack for 24 hours of sampling as quoted by Jacobs), we chose to sample one stack for a period of 10 operating hours. This will give us total coverage of first shift activities along with 1 hour on either side of shift changes. This data will subsequently be utilized in the dispersion model to add further background information to the investigation.

In addition to these activities, Semiconductor has taken a close look at the processes within the Building 54 wafer fabrication area that may be a source of the odor issue. We are contacting our customers to determine if it may be possible to replace some of the process chemicals currently in use with substitutes that may have less potential to cause or contribute to odors at the facility. We are also continuing to review operating procedures and process configurations in order to ensure that reasonable steps have been taken in the proper control of the subject chemicals.

As indicated in my telephone conversation with Caroline Shine on March 8, Semiconductor has requested the Tallahassee DER office for an extension on the submission of appropriate operating permit applications for this facility. It does not appear worthwhile for either DER or Semiconductor to put effort into obtaining operating permits that will be ultimately denied.

Please contact me at 729-5736 if I can provide any further assistance in this matter.

Yours truly,

Kent Smith
Manager, Environmental Services

cc: D. R. Erdley
R. R. Sands
L. R. Hutker
J. R. Steiner

HARRIS SEMICONDUCTOR

ENVIRONMENTAL SERVICES DEPARTMENT

FAX TRANSMITTAL

DATE: 3/22/90

TO: Mitchell FAX # (904) 727-4938

FROM: Joey Baldisserotto FAX # (407) 729-5153

# of pages (including cover) ___

MESSAGE:

Please call B. Mitchell
or P. Adams
at 8-1344.

(407) 729-4061
P.O. Box 883, Melbourne, FL 32901-00833
MS 59-006

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

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

To: _____ Loctn.: _____
To: _____ Loctn.: _____
To: _____ Loctn.: _____
From: _____ Date: _____
Reply Optional [ ] Reply Required [ ] Info. Only [ ]
Date Due: _____ Date Due: _____

CENTRAL DISTRICT

2 COPIES

TO: Jim Pennington, PE III
Air BAQM

OCD-AP-90-0886

THROUGH: for A. Alexander, Deputy Assistant Secretary

THROUGH: Chuck Collins, Program Administrator
Air Resource Management

FROM: Garry D. Kuberski, Eng. III, Section Supervisor
Compliance/Enforcement

DATE: March 8, 1990

SUBJECT: Harris Semiconductor
Permit AC 05-147321, expiration April 30, 1990
Building 54, four VOC scrubbers.
VOC Emission Limit and method of compliance determination

Specific condition number 5 of the above referenced permit states the following:

> "an annual operating report shall be submitted to the DER's Central Florida District office demonstrating compliance with the VOC/solvent emissions limit for Building No. 54 and shall be determined by a material balance scheme"

Although specific condition number 6 of the permit requires annual testing by Method 25, (which was modified to Method 25A) it does not state that compliance shall be determined by the testing. In addition there is no emission limit in terms of pounds VOC per hour. An annual maximum emission rate is specified in specific condition 1 of 95.7 tons per year.

It appears that the intent of this permit was to determine compliance with an annual operating report, not annual testing.

If the assumption is made that the maximum allowable emissions of 95.7 tons per year specified in specific condition number 1 can be converted to pounds per hour and that the test required in specific condition number 6 can be used to determine compliance, than the testing of August 1989 has shown a violation of the emission limit. (See test report review.)

Please advise which method of compliance determination is correct.

GK/j
attachments
cc Rick Vail

Review of Method 25A stack test report

Harris Corporation--Semiconductor division

Building 54 VOC scrubbers

Permit Number AC 05-147321

Test conducted by Air Consulting and Engineering (Steve Neck)

August 1989

From permit 95.7 tons per year is max. allowed,

From permit 8760 hours per year max is allowed.

If the assumption is made that the yearly emission limit can be put on an hourly basis, than: $(95.7\text{tons/yr})(2000\text{lb/ton})\left(\frac{1\text{yr}}{8760\text{hr}}\right) = 21.85\text{lb/hr}$

From test report emission rate from system 1, is 2.53 lb/hr

From test report emission rate from system 3, is 9.13 lb/hr

Emission rate system 1 and 3---------- 11.66 lb/hr

Total VOC emission rate from scrubbers 11.66 X 2 = 23.32lb/hr

Florida Department of Environmental Regulation

Central District • 3319 Maguire Boulevard, Suite 232 • Orlando, Florida 32803-3767 • 407-894-7555

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary
Alex Alexander, Deputy Assistant Secretary

March 13, 1990

OCD-AP-90-0897

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Harris Semi-conductor
Post Office Box 883
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Brevard County - AP
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Program Administrator
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CMC:csj

cc: D. R. Erdley
R. R. Sands
B. Thomas, CAPS
B. Mitchell, CAPS

HARRIS

ROBERT R. SANDS
CORPORATE DIRECTOR
ENVIRONMENTAL PROGRAMS

HARRIS CORPORATION CORPORATE HEADQUARTERS
MELBOURNE, FLORIDA 32919 PHONE 407-724-3711

HARRIS

DENNIS R. ERDLEY
ENVIRONMENTAL COUNSEL

HARRIS CORPORATION
1025 W. NASA BLVD.
MELBOURNE, FLORIDA 32919 PHONE: (407) 727-9388

HARRIS SEMICONDUCTOR
HARRIS · RCA · GE · INTERSIL

March 12, 1990

Express Mail

Charles M. Collins, P.E.
Program Administrator
Air Resources Management
Central Florida District
Florida Department of Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

RE: Brevard County - AP
Warning Notice - OWN-AP-89-0151

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HARRIS CORPORATION SEMICONDUCTOR SECTOR P.O. BOX 883 MELBOURNE, FL 32902-0883 407-724-7000 FAX 407-729-5691 TWX 510-959-6259

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Kent Smith
Manager, Environmental Services

cc: D. R. Erdley
R. R. Sands
L. R. Hutker
J. R. Steiner

Alan Please give me a rundown of these permit numbers what are they for? Check

HARRIS SEMICONDUCTOR
HARRIS · RCA · GE · INTERSIL

March 8, 1990

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

Subject: Extension of Consolidated Construction Permits
Harris Semiconductor, Melbourne

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AC 05-157786	51
AC 05-157787	62 ok
AC 05-158237	63 ok
AC 05-159484	58 ok
AC 05-161706	57 ok
AC 05-164544	55 ok
AC 05-168460	60 ok

Dear Mr. Fancy:

In accordance with F.A.C. rule 17-4.09 and Specific Condition No. 13 of the above mentioned air permits, the purpose of this letter is to request an extension of the expiration dates until December 30th, 1990.

Harris Semiconductor and the Orlando FDER are currently undergoing negotiations concerning an objectionable odor warning notice issued to the Palm Bay site in December (warning notice OWN-AP-89-0151.) The Orlando FDER has indicated that Semiconductor will not be issued operating permits in June if the odor issue is not resolved by that time. If the Department requires Semiconductor to submit applications for operating permits in March which it intends to deny because a solution to this issue has not been fully implemented by June, Semiconductor will be forced to initiate administrative litigation or operate without permits. If Semiconductor and the Agency are both working to resolve this issue, you may agree that this dilemma would not be desirable from the perspective of either Semiconductor or the Department.

To avoid an unnecessary permitting crisis while the Department and Semiconductor reach agreement on the means of solving the odor issue, Semiconductor is requesting that the Department extend the expirations dates by a period of six (6) months. This is currently the expiration date of the construction permit for building 4 (permit no. AC 05-165757.)

If this extension is granted, operating permit applications for all applicable buildings on the site will be submitted by September 30th, 1990. Please note that this will not affect the submittal of the annual operating reports and mass balance information for 1989, which is currently due by March 31st.

Please feel free to phone me at (407) 729-4061 if you have any questions.

Sincerely, Nancy Baldisserotto

Nancy Baldisserotto
Senior Environmental Engineer
Environmental Services

cc: T. Sawicki
B. Mitchell

\extnrqst.2

TELEPHONE COMPLAINTS
NO. 148

☐ EMERGENCY RESPONSE

☐ FISH KILL
☐ WATER POLLUTION (General)
☐ AIR
☐ SOLID WASTE
☐ INDUSTRIAL WASTE
☐ HAZARDOUS WASTE
☐ DRINKING WATER
☐ DOMESTIC WASTE
☐ DREDGE/FILL/STORMWATER
☐ DW/COLLECTION SYSTEM
☐ PETROLEUM SPILL/LEAK
☐ MW/DISTRIBUTION SYSTEM

COUNTY: Brevard DATE: 2/14/90 TIME: 9:30

NAME & ADDRESS OF SITE: Harris Corporation Palm Bay Road, Melbourne

NATURE & DESCRIPTION OF COMPLIANT: objectionable odors

morning / worst night

LENGTH OF PROBLEM: Constantly

COMPLAINANT: Patty Wild

ADDRESS/TEL: 4830 Lapeer Street, NE 407-951-0731

TELEPHONE

PERSON RECEIVING COMPLAINT

PERSON/AGENCY COMPLAINT ASSIGNED TO

Revised 8/29/88

DER - MELBOURNE OFFICE
COMPLAINT REFERRAL/RECEIPT FORM

___	FISH KILL (Technical Assistance)	___	DRINKING WATER
___	UIC/GROUNDWATER	___	DOMESTIC WASTE
___	AIR	___	DREDGE/FILL
___	SOLID WASTE	___	DW/COLLECTION SYSTEM
___	INDUSTRIAL WASTE	___	PETROLEUM SPILL/LEAK
___	HAZARDOUS WASTE	___	MW/DISTRIBUTION SYSTEM

Date: 2/8/90 Time: 9:10 County: Brevard

COMPLAINTANT: Leonard Spina

Street Address: 8100 Woodlake Dr., Apt 201

City: Palm Bay Zip: 32905 Phone: Home (407) 984-1735
WORK (407) 984-3125

NATURE OF COMPLAINT: Objectionable odor

How long has problem existed: Months

Contact person: Mr. Spina

Address or directions to site: Near Harris Semi Conductor

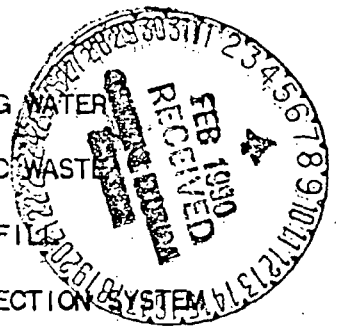
REMARKS: During night hours such an objectional, chemical-like odor occurs that it burns his nostrils.

Person receiving complaint: H. Shepherd

Person/Agency assigned to investigate: Please send copy to Caroline Shine and return original. DV

Revised 10/25/89

DER - MELBOURNE OFFICE
COMPLAINT REFERRAL/RECEIPT FORM



___	FISH KILL (Technical Assistance)	___	DRINKING WATER
___	UIC/GROUNDWATER	___	DOMESTIC WASTE
___	AIR	___	DREDGE/FILL
___	SOLID WASTE	___	DW/COLLECTION SYSTEM
___	INDUSTRIAL WASTE	___	PETROLEUM SPILL/LEAK
___	HAZARDOUS WASTE	___	MW/DISTRIBUTION SYSTEM

Date: 2-5-90 (Monday) Time: 11 A M County: Brevard

COMPLAINTANT: Richard J. McDonald

Street Address: 2696 Pine St. N.E.

City: Palm Bay Zip: 32905 Phone: 723-9329

NATURE OF COMPLAINT: Objectionable odor/air pollution

How long has problem existed: Several months

Contact person: Mr. McDonald

Address or directions to site: _____

REMARKS: When wind or breeze comes from west or northwest a strong chemical-like odor occurs. Previously, the odor was occurring during the day but it is now most noticeable during the night. The odor (fumes) causes sore throats and other undesirable symptoms. Mr. McDonald believes the source is Harris Semiconductor. He further believes they are doing some process that causes odor at night to avoid detection.

Person receiving complaint: K. Shepherd

Person/Agency assigned to investigate: _____

Revised 10/25/89

cc: Caroline Shine

89-013

TELEPHONE COMPLAINTS

- [ ] FISH KILL (Technical Assistance)
- [ ] UIC/GROUNDWATER
- [x] AIR
- [ ] SOLID WASTE
- [ ] INDUSTRIAL WASTE
- [ ] HAZARDOUS WASTE
- [ ] DRINKING WATER
- [ ] DOMESTIC WASTE
- [ ] DREDGE/FILL
- [ ] DW/COLLECTION SYSTEM
- [ ] PETROLEUM SPILL/LEAK
- [ ] MW/DISTRIBUITON SYSTEM

Date: 12-4-89 Time: 9:40 AM County: Brevard

COMPLAINANT: Richard McDonald

Street Address: 2696 Pine St.

City: Palm Bay Zip: 32905 Phone: 723-8329

NATURE OF COMPLAINT: Resumption of strong "disinfectant-type" odor

How long has problem existed: Months

Contact person: Mr. McDonald

Address or directions to site:

REMARKS: Westerly wind began and brought the objectional odor back. Problem is at its worst when breezes, or wind, is from the west.

Person receiving complaint: H. Shepherd

Person/Agency assigned to investigate: BK / xc Caroline Shine Orlando

89-012

TELEPHONE COMPLAINTS

- [ ] FISH KILL (Technical Assistance)
- [ ] UIC/GROUNDWATER
- [x] AIR
- [ ] SOLID WASTE
- [ ] INDUSTRIAL WASTE
- [ ] HAZARDOUS WASTE
- [ ] DRINKING WATER
- [ ] DOMESTIC WASTE
- [ ] DREDGE/FILL
- [ ] DW/COLLECTION SYSTEM
- [ ] PETROLEUM SPILL/LEAK
- [ ] MW/DISTRIBUITON SYSTEM

Date: 11-21-89 Time: 11:02 A.M. County: Brevard

COMPLAINANT: Nellie Clark

Street Address: 2606 Pine St. S.E., ~~Palm Bay~~

City: Palm Bay Zip: 32905 Phone: 723-0465

NATURE OF COMPLAINT: Odor bothering asthmatic condition

How long has problem existed: 1 mo to 6 weeks

Contact person:

Address or directions to site: Corner of Pine St. & Glenham Rd, N.E.

REMARKS: Westerly wind makes condition much worse.

Person receiving complaint: H Shepherd

Person/Agency assigned to investigate: Referred to Charles Pacenski BCOHRM.

Melbourne 89-011

TELEPHONE COMPLAINTS

- [ ] FISH KILL (Technical Assistance)
- [ ] UIC/GROUNDWATER
- [x] AIR
- [ ] SOLID WASTE
- [ ] INDUSTRIAL WASTE
- [ ] HAZARDOUS WASTE
- [ ] DRINKING WATER
- [ ] DOMESTIC WASTE
- [ ] DREDGE/FILL
- [ ] DW/COLLECTION SYSTEM
- [ ] PETROLEUM SPILL/LEAK
- [ ] MW/DISTRIBUITON SYSTEM

Date: 11/14/89 Time: 11:15 County: Brevard

COMPLAINANT:

Street Address: 2696 Pine St, NE

City: Palm Bay Zip: 32905 Phone:

NATURE OF COMPLAINT: Odors

How long has problem existed:

Contact person:

Address or directions to site:

REMARKS: Odors are noticeable when wind is from the west and appear to be coming from the Harris facility on the N side of Palm Bay Rd. (Semi-Conductor).
NOTE: We have had similar complaints re: Storage Tek historically. D.V.

Person receiving complaint: D. Valin-Melbourne

Person/Agency assigned to investigate: forwarded to C. Collins through G. Biamis and copied to County ON-RAM

TELEPHONE COMPLAINTS
NO. 126

☐ EMERGENCY RESPONSE

☐ FISH KILL	☐ DRINKING WATER
☐ WATER POLLUTION (General)	☐ DOMESTIC WASTE
☒ AIR	☐ DREDGE/FILL/STORMWATER
☐ SOLID WASTE	☐ DW/COLLECTION SYSTEM
☐ INDUSTRIAL WASTE	☐ PETROLEUM SPILL/LEAK
☐ HAZARDOUS WASTE	☐ MW/DISTRIBUTION SYSTEM

COUNTY: Brevard DATE: 11/3/89 TIME: 2:55 P

NAME & ADDRESS OF SITE: Harris Corp - Palm Bay Road

NATURE & DESCRIPTION OF COMPLIANT: Odors that's causing burning in throat and very bad smell

LENGTH OF PROBLEM: Since week of 10/30/89

COMPLAINANT: Carol Davis

ADDRESS/TEL: 407-984-4922

TELEPHONE PERSON RECEIVING COMPLAINT: D Jones

PERSON/AGENCY COMPLAINT ASSIGNED TO: CS

Referred to Brevard County (see complaint log #121)

Revised 8/29/88

TELEPHONE COMPLAINTS
NO. 127

☐ EMERGENCY RESPONSE

☐ FISH KILL
☐ WATER POLLUTION (General)
☒ AIR
☐ SOLID WASTE
☐ INDUSTRIAL WASTE
☐ HAZARDOUS WASTE
☐ DRINKING WATER
☐ DOMESTIC WASTE
☐ DREDGE/FILL/STORMWATER
☐ DW/COLLECTION SYSTEM
☐ PETROLEUM SPILL/LEAK
☐ MW/DISTRIBUTION SYSTEM

COUNTY: Brevard Co DATE: 11-3-89 TIME: 3:45 P.

NAME & ADDRESS OF SITE: Harris Corp Palm Bay Blvd

NATURE & DESCRIPTION OF COMPLIANT: Strong emissions a odor - very bad & Smell is: Choking & very sickening - Gets stronger each day! Complainant lives 2½ miles from Harris -

LENGTH OF PROBLEM: 3 months

COMPLAINANT: Henry J Witkowski

ADDRESS/TEL:

TELEPHONE: 1-407-727-2296

PERSON RECEIVING COMPLAINT: D J

PERSON/AGENCY COMPLAINT ASSIGNED TO: CS

Referred to Brevard County to investigate

Revised 8/29/88

HARRIS SEMICONDUCTOR

HARRIS · RCA · GE · INTERSIL

March 8, 1990

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

Subject: Extension of Consolidated Construction Permits
Harris Semiconductor, Melbourne

Permit Nos.	Bldg.
AC 05-147321	54
AC 05-150794	59
AC 05-157786	51
AC 05-157787	62
AC 05-158237	63
AC 05-159484	58
AC 05-161706	57
AC 05-164544	55
AC 05-168460	60

Dear Mr. Fancy:

In accordance with F.A.C. rule 17-4.09 and Specific Condition No. 13 of the above mentioned air permits, the purpose of this letter is to request an extension of the expiration dates until December 30th, 1990.

Harris Semiconductor and the Orlando FDER are currently undergoing negotiations concerning an objectionable odor warning notice issued to the Palm Bay site in December (warning notice OWN-AP-89-0151.) The Orlando FDER has indicated that Semiconductor will not be issued operating permits in June if the odor issue is not resolved by that time. If the Department requires Semiconductor to submit applications for operating permits in March which it intends to deny because a solution to this issue has not been fully implemented by June, Semiconductor will be forced to initiate administrative litigation or operate without permits. If Semiconductor and the Agency are both working to resolve this issue, you may agree that this dilemma would not be desirable from the perspective of either Semiconductor or the Department.

To avoid an unnecessary permitting crisis while the Department and Semiconductor reach agreement on the means of solving the odor issue, Semiconductor is requesting that the Department extend the expirations dates by a period of six (6) months. This is currently the expiration date of the construction permit for building 4 (permit no. AC 05-165757.)

If this extension is granted, operating permit applications for all applicable buildings on the site will be submitted by September 30th, 1990. Please note that this will not affect the submittal of the annual operating reports and mass balance information for 1989, which is currently due by March 31st.

Please feel free to phone me at (407) 729-4061 if you have any questions.

Sincerely, Nancy Baldisserotto

Nancy Baldisserotto
Senior Environmental Engineer
Environmental Services

cc: T. Sawicki
B. Mitchell

\extnrqst.2

HARRIS SEMICONDUCTOR

February 16, 1990

Certified Mail

Charles M. Collins, P. E.
Program Administrator
Air Resources Management
Central Florida District
Florida Department of Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Fl. 32803

Re: Brevard County - AP
Warning Notice - OWN-AP-89-0151

Dear Mr. Collins:

This letter is submitted on behalf of Harris Corporation, Semiconductor Sector ("Semiconductor") to follow-up on our letter of January 19th and respond to the Department's most recent correspondence. Apparently, based on the Department's February 6th letter, there was a misunderstanding between the parties as to the agreed upon content of Semiconductor's January 19th letter. However, we do not see any point in dwelling on this issue and will only briefly address some of the matters noted in the February 6th letter.

As we agreed at our meeting, we have inspected the Building 54 scrubbers to insure they are being properly maintained and operated in compliance with their permit conditions. Leaks or other problems which might adversely affect the efficiency of the scrubbers have not been detected. Semiconductor does not intend to expend further resources exploring how the operation of these water scrubbers might be modified to improve the control of emissions which contribute to odors at the facility. In the recent past, Semiconductor looked at this issue and found that even under optimum operating conditions water scrubbers are not an effective means of controlling emissions which may cause the type of odors at issue.

At our meeting, we committed to review chemical use information to determine if the nature or amount of chemicals likely to contribute to odors at the facility had changed in any significant way over the past year. We have reviewed this data and no significant changes in the type or amount of chemicals utilized have been identified.

We have always understood that the Department was not obligated or inclined to do any of the technical or engineering work necessary to find a means of better controlling odors at the Semiconductor facility. The comments

HARRIS CORPORATION SEMICONDUCTOR SECTOR P O BOX 883 MELBOURNE, FL 32902-0883 407-724-7000 FAX 407-729-5691 TWX 510-959-6259

in Semiconductor's January 19th letter which related to supplying the Department with data sufficient to enable it to do certain stack height modeling were based on our impression from remarks made by Department personnel, at the meeting, that they were interested in modeling the impact of increased stack heights, perhaps for the Department's own purposes.

Semiconductor has retained Jacobs Engineering Group Inc. ("Jacobs") to address the odor issue recently raised by the Department. Notwithstanding the fact that Department personnel have apparently concluded that chemicals used in photoresist process are the source of the odor, Jacobs first task shall be to confirm the nature and source of the odor identified by Department personnel as a problem at the facility's property boundaries. Subject to a different recommendation from Jacobs, it is anticipated this task will be broken down into the following three (3) steps. Utilizing GC/MS or comparable analytical technology, the stacks at Building 54 and Building 51 will be monitored to identify the specific constituents and their concentrations in the emissions leaving the stacks. Applying this data in a dispersion model, Jacobs will then determine the areas likely to be affected by odors. If Jacobs determines it is necessary or appropriate, GC/MS technology will be utilized to analyze samples collected from some of these areas to confirm the presence of emissions likely to cause odors. From a scientific and technical standpoint, this exercise should adequately identify the particular emissions causing or contributing to the odor identified by Department personnel at the facility's property boundaries.

Once the source of the odor has been confirmed, Jacobs will then recommend to Semiconductor process or control technology modifications to reduce the emissions causing the odor. If appropriate, for review and permit modification purposes, Semiconductor will then submit the selected remedy to the Department. If no unforeseen problems are encountered, it is anticipated that we should be in a position to provide this information to the Department within three (3) or so months. Within thirty (30) days, Semiconductor will follow-up on this letter and submit a schedule specifically outlining when all the activities discussed above should be completed.

While Jacobs is conducting its activities, the Semiconductor environmental staff will be actively involved in reviewing process and chemical use data to identify practical means of reducing the emissions which may be causing the odor in question.

There are a couple of additional matters which need to be emphasized. The process outlined above assumes there is a reasonable solution to this odor issue. If the only effective remedy is to substantially retrofit the major manufacturing operations at the facility with state of the art control technology at a cost of millions of dollars, we are not in a position to commit to such a course of action. Where existing health standards and guidelines indicate that the facility's emissions do not present a problem, it would not be reasonable to spend millions of dollars addressing an odor issue at the

facility's boundaries which is not significant and occurs only on an occasional basis.

The other matter concerns the source of alleged odors at various locations in the surrounding community. As we have pointed out in the past, some of these locations are some distance from the Semiconductor property boundaries. There are operations in the community unrelated to Semiconductor which may be causing or contributing to these alleged odors. Better control by Semiconductor of the odor identified by Department personnel at the Semiconductor facility may not resolve these odor issues.

At our meeting, you raised an issue which needs to be addressed by the Department and Semiconductor at this time. You indicated Semiconductor would not be issued operating permits in June if the odor issue were not resolved by that time. The investigation outlined above should be completed by that time; however, depending on their nature, implementation of process or control technology modifications may take an additional several months or longer. To avoid an unnecessary permitting crisis while the Department and Semiconductor reach agreement on the means of solving this odor issue, it is appropriate for the Department to extend the expiration dates of the construction permits in question by a period of six (6) months. If the Department requires Semiconductor to submit applications for operating permits in March which it intends to deny because a solution to this issue has not been fully implemented by June, Semiconductor will be forced to initiate administrative litigation or operate without permits. If Semiconductor and the Agency are both working to resolve this issue, I think you will agree this dilemma would not be desirable from the perspective of either Semiconductor or the Department.

After the Department has had an opportunity to review Semiconductor's proposed course of action, please confirm in writing to me that it is acceptable. In addition, please let me know if the Department is receptive to extending the expiration dates on the construction permits in issue as proposed. Please call me (407/729-5736) if you have any questions.

Yours truly,

K. Smith
Manager, Environmental Services

cc: D. R. Erdley
R. R. Sands

DRI:pc
L/013/90

Florida Department of Environmental Regulation

Central District • 3319 Maguire Boulevard, Suite 232 • Orlando, Florida 32803-3767 • 407-894-7555

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary
Alex Alexander, Deputy Assistant Secretary

February 6, 1990

CERTIFIED
P35 4912498

OCD-AP-90-0828

Mr. L. R. Hutker, P.E.
Harris Corporation
Semiconductor Sector
Post Office Box 883
Melbourne, Florida 32901

Dear Mr. Hutker:

We are in receipt of your January 19, 1990 letter and have the following comments.

In general, the letter did not address all of the many items your company was to have checked to bring the unit into compliance, (e.g. recirculate rate, pressure drops, water re-entrainment, more efficient control, etc.), but we assume your engineer representative at the meeting will handle the details and come up with even new items to bring your company into compliance.

One statement, that the Department will handle the modeling for you is in error. We will offer you assistance, not handle the work for you. You were to model the affects of increasing your stack height, and flow rate. The corrective actions are yours to take, we will not be calling you. Your men are to take the initiative.

To clarify the intent of the meeting, it was to inform Harris Corporation that we have documented a definite odor problem with the unit and that Harris must solve the problem any way they can.

Your letter does not serve the objective we wanted from the meeting. You were to explain your corrective action plan in detail and as a bare minimum, include the items discussed in our one hour meeting.

Please respond within **five (5) days** receipt of this letter.

Sincerely,

Charles M. Collins

Charles M. Collins, P.E.
Program Administrator
Air Resources Management

CMC:j

cc: D. R. Erdley
R. R. Sands

HARRIS SEMICONDUCTOR

HARRIS RCA GE INTERSIL

February 2, 1990

Charles D. Pacamalan
Sanitarian, Environmental Regulation Section
Office of Natural Resources Management
2575 North Courtenay Parkway
Merritt Island, FL 32953

SUBJECT: ODOR COMPLAINTS

Dear Mr. Pacamalan:

The purpose of this letter is to provide you with the information that you requested during our phone conversation on February 1st. The following is a synopsis of the visits between representatives of Harris Semiconductor Corporation and Mr. Albert Rubens:

On November 27th, Mr. Albert E. Rubens called in to complain of a strong chemical smell (resembling shoe polish) at his residence on Pumpkin Drive in Palm Bay. Two representatives, one from Harris Semiconductor and one from Harris Government Systems Sector, promptly visited his home that morning at around 10 o'clock, but no odors were detected. A Microtip photoionization detector was utilized during the investigation, but no chemical vapors were detected. Mr. Rubens claimed to experience the odor predominantly in the mornings between 8 and 11 o'clock. He said the odor was especially strong on Sunday, November 26th. He said that the chemical caused irritation to his eyes and respiratory tract. He has been a resident for about five years, and claims that he has noticed the smell for a little less than one year.

Mr. Ruben's home was visited again on January 30th at 10:00 a.m. in response to another complaint. Four Harris representatives were present. Although Mr. Rubens could smell the odor, none of those present from Harris could detect the presence of a chemical smell, nor did they experience any physical discomfort. Representatives from Semiconductor included the manager of Environmental Services Department, a senior environmental engineer, and a senior hazardous waste handler. The Government Systems representative is an industrial hygienist.

Please give me a call (729-4061) if you have any questions.

Sincerely,

Nancy Baldisserotto

Nancy Baldisserotto
Senior Environmental Engineer

HARRIS

January 19, 1990

Express Mail

Charles M. Collins, Prof Eng III
Caroline Shine, Env Spc II
Central Florida District
Florida Department of Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Fl. 32803

Re: Brevard County - AP
Warning Notice - OWN-AP-89-0151

Dear Mr. Collins and Ms. Shine:

This letter is written to confirm our tentative course of action to resolve the issues raised in the above-referenced notice and discussed during our meeting on January 17, 1990. On behalf of Harris Corporation, Semiconductor Sector, we have agreed to re-examine our scrubber systems to insure they are operating in compliance with all the terms and conditions imposed by the Building 54 Construction Permit. We have also agreed to review the facility's chemical use information to see if there have been any recent changes which might contribute to an increase in odors at the facility. We have further committed to supplying the Department with the available data necessary to model the affect of increased stack heights. It is my understanding that the Department may currently possess sufficient information for the modeling analysis. If this is not the case, please call me to obtain such information as soon as possible.

It is our understanding that, barring unforseen developments, we have agreed to accomplish the above tasks by February 17, 1990 and report the results of our efforts to the Department. If the Department does not agree with the above summary of the results of our discussions, please contact me immediately. Thank you for your time and consideration.

Yours truly,

L. R. Hutker, P. E.
Director, Facilities

cc: D. R. Erdley
R. R. Sands

E/88/90
DRE:pc

Florida Department of Environmental Regulation

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

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

January 8, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kent Smith, Environmental Manager
Harris Semiconductor
P. O. Box 883
Melbourne, Florida 32902-0883

Dear Mr. Smith:

Re: Amendment of Construction Permits:

AC 05-147321	Bldg. 54
-150794	59
-157786	51
-157787	62
-158237	63
-159484	58
-161706	57
-164544	55

The Department has reviewed Ms. Nancy Baldisserotto's letter received December 13, 1989, requesting that the above referenced air construction permits' expiration dates be extended. The Department is in agreement with the basic request and the following will be changed and added:

A. AC 05-147321, -150794, -157786, -157787, -158237, -159484, -161706 and -164544.

- o Expiration Date

  From: April 30, 1990
  To: June 30, 1990

B. Attachment to be Incorporated

- o Ms. Nancy Baldisserotto's letter received December 13, 1989.

This letter must be attached to your air construction permits, as referenced above, and shall become a part of the permits.

Sincerely,

Dale Twachtmann
Secretary

DT/plm

Attachment

c: C. Collins, Central Dist.
N. Baldisserotto, HS

HARRIS SEMICONDUCTOR

HARRIS · GCA · GE · INTERSIL

January 4, 1990

A. Alexander, P.E.
Deputy Assistant Secretary
Central District
Florida Department of
Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Fl. 32803-3667

Re: Brevard County - AP
Warning Notice - OWN-AP-89-0151

Dear Mr. Alexander:

This letter is sent, on behalf of Harris Semiconductor, in response to the above-referenced warning notice ("notice"). We have responded to the specific items outlined in the notice below and have included various reports and other materials most of which are already in the possession of the Department.

Over the last several months there have been a few complaints in the surrounding community concerning odors. To our knowledge, most of the locations where these complaints have originated are some distance from the Harris Corporation property boundaries. In 1988, computer modelling by Jacobs Engineering demonstrated that emissions from Harris Semiconductor under worse case conditions, based on existing state and federal standards and guidelines, would not have any adverse health impacts at ground level concentrations. This data was submitted to the Department and is also included with this correspondence. It is our understanding that there are laundry, automobile repair and body work, printing, and other operations in the vicinity of some of these complaints which could be causing or contributing to any odors which may exist, at times, in the surrounding community.

It should be emphasized that it has not been established that Harris Semiconductor has violated the terms and conditions of its air emission permits or any provisions of the Florida Statutes. It is our understanding that on December 4th, Department personnel identified certain odors which appeared to the Agency representative to be emanating from various operations at the Harris Semiconductor facility in Palm Bay. Harris Corporation's Palm Bay facilities are located on over three hundred acres of contiguous properties all of which are owned by Harris Corporation. Odors which on occasion are emitted by various operations at the Harris Semiconductor facility are not necessarily detectable in the surrounding community or even at Company's property boundaries.

Even if odors from Harris Semiconductor operations are present at the property boundaries, without further study, it would be premature to characterize them as objectionable. As we have in the past, we will continue to look at reasonable means to better control emissions from the Harris Semiconductor operations. In addition, we have established the procedures listed below to help track and monitor any emissions emanating from the facility when there is an odor complaint

in the surrounding community.

The items specifically identified in the Department's notice are addressed as follows:

1. HOURS OF OPERATION OF CONTROL DEVICE - Attachment I contains a list of scrubber systems employed by Semiconductor, and a scrubber location map. With the exception of system nos. F04S05 and F55S01, all scrubber systems operate 8760 hours per year. F04S05 and F55S01 are equipped with manual on/off switches, and are used on an 'as needed' basis.

2. DOCUMENTATION OF OPERATION LOGS AND EQUIPMENT FAILURES - Scrubber operation and maintenance is the responsibility of Semiconductor's Mechanical Equipment group. Weekly inspections are performed on the systems. Observations and repairs are recorded on weekly scrubber maintenance sheets. Attachment II contains copies of these scrubber inspection sheets for 1988 and 1989.

3. LOCATION OF LEAKS - The weekly inspections include checking the scrubbers for sump and recirculation water pump leaks. The above mentioned scrubber inspection sheets (attachment II) show recordings of any leaks observed, as well as the physical repairs performed on the units.

4. VOC EMISSION MATERIAL BALANCE FROM 10/30/88 TO PRESENT - Attachment III contains a copy of the Solvent Mass Balance Report for calendar year 1988. Our facility is currently in the process of compiling the mass balance report for 1989. This report will be submitted by March 31, 1990, in accordance with Specific Condition no. 6 of the consolidated air permits issued for each appropriate building.

5. COPY OF TESTING REPORTS - Monitoring work was performed on building 54 scrubber systems in 1987, 1988, and 1989. Tests for solvents included EPA methods 25A (flame ionization detection) and method TO-1 (Tenax adsorption and GC/MS analysis.) EPA method 8 was used to determine acid emissions. Attachment IV contains copies of these reports.

6. CONTROL EQUIPMENT BASELINE OPERATION RATES - Attachment V provides manufacturer's information on the scrubber systems, and the recommended operating rates. The scrubbers are equipped with Dwyer inclined manometers to measure pressure drop, and the recirculation water and make-up water lines are equipped with Signet flow meters. Information on these indicators is included in attachment V.

7. ASSURANCE THAT ODORS WILL NOT HAVE A NEGATIVE IMPACT ON HEALTH & ENVIRONMENT - In February of 1988, Jacobs Engineering performed an air dispersion modelling study of the Semiconductor site. This exercise was performed in order to ensure that the ground level concentrations of emissions were not a concern to public health. Air monitoring data at the stack outlet was used to predict maximum ground level plume concentrations. Twelve solvent compounds identified in the stack emissions were modelled. None of the modeled compounds exceeded off-property guidelines (1/100 and 1/300 of OSHA (PEL) values for non-carcinogenic and carcinogenic compounds, respectively.) A copy of this report is included in attachment VI.

8. CURRENT ACTIVITIES - Semiconductor is committed to the continual upkeep of our air pollution control equipment. Weekly inspections and the on-going maintenance program discussed earlier help to ensure the upkeep of the systems. Semiconductor also performs annual acid and solvent/VOC monitoring of the scrubber stacks to determine efficiency and potential VOC/solvent and acid emissions. In addition, our facility submits an annual mass balance report in order to demonstrate compliance with the VOC/solvent emissions limit.

Harris Semiconductor has adopted procedures whereby facility personnel respond promptly to odor complaints in the surrounding community which may be related to Harris Semiconductor operations. To date, seven (7) off-site investigations have been conducted and no odors or air emissions have been detected. A Microtip photoionization detector was utilized during these investigations (see attachment VII for list of compounds that can be detected), but no chemical vapors were detected. In the future, Harris representatives will continue to respond to odor complaints that are potentially associated with Harris Semiconductor operations.

Please give me a call (729-5691) if the Department needs any additional information. We will be contacting Caroline Shine this week to schedule an informal meeting, as requested.

Yours truly,

L. R. Hutker, P. E.
Director, Facilities

cc: D. R. Erdley
R. R. Sands

Florida Department of Environmental Regulation

Central District • 3319 Maguire Boulevard, Suite 232 • Orlando, Florida 32803-3767 • 407-894-7555

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary | Alex Alexander, Deputy Assistant Secretary

December 13, 1989

Rcvd 12/19

CERTIFIED
P35 4912981

WARNING NOTICE
OWN-AP-89-0151

Mr. L. R. Hutker, P.E.
Director, Facilities
Harris Corporation
Semiconductor Sector
Post Office Box 883
Melbourne, Florida 32901

Brevard County - AP
Objectionable Odors - Building 54

Dear Mr. Hutker:

Under Chapter 403, Florida Statutes, the Department of Environmental Regulation was delegated the power and duty to control and prohibit pollution of air and water in accordance with the law, rules and regulations promulgated by the department.

You are hereby placed on notice that the department has reason to believe that you are presently operating in violation of Section 403.161, Florida Statutes, and department rules and regulations, as noted on the attached sheet(s).

Section 403.161(1) provides that whoever commits a violation of that Section shall be liable to the state for any damage caused and for civil penalties of up to $10,000 per day during which the violation occurs.

Accordingly, you are hereby advised to respond to the specific violations **within 10 days** from receipt hereof.

You should direct your response and any questions concerning this Warning Notice to Caroline Shine or Charles Collins, Air Resource Management, at (407) 894-7555 or at the above address.

Sincerely,

A. Alexander, P.E.
Deputy Assistant Secretary

AA/csj

WARNING NOTICE
OWN-AP-89-0151
December 13, 1989

Rules Violated

Section 403.161 (1)(b), Florida Statutes - Prohibition to fail to obtain any required permit or to fail to comply with any rule, regulation, order, permit or certification issued by the Department. Permit AC05-147321, Specific Condition #4 - No objectionable odors off site.

Florida Administrative Code Rule 17-2.620(2) - Objectionable odor prohibited

Remarks (e.g., explanatory statement)

On December 4, 1989, a Department representative visited your Building 54 site, located on Palm Bay Road, Palm Bay, Brevard County, Florida, in response to citizen complaints. The representative observed objectionable odors off the property which were emanating from your Building 54, and objectionable chlorine odor from your water treatment area. The objectionable odors from your facility are violations of the above Florida Statutes and Rules.

Within 7 days from the receipt of this letter, conduct an inspection of the above facility and submit a written report of your findings to the Department. The report should include, but not limited to:

hours of operation of your control device
document of operation logs and equipment failures
location of leaks if observed
VOC/Solvent emission material balance from 10/30/88 to the present
copy of testing reports
control equipment baseline operation rates, and
the identified source or reason for the non-compliance

Also **within 7 days** from receipt of this letter, eliminate the objectionable odors or submit to the Department your plan of action and proposed time lines to correct the problem. Provide the Department with assurance that the odors will not be a threat to human health and environment and provide technical support data. Please note that any modification pursuant to F.A.C. 17-2.100(119), shall be submitted to this district and Bureau of Air Quality Management for prior approval.

Consider the use of the chemical originally permitted if you require time to install a carbon adsorber unit or other needed controller.

Within 10 days from receipt of this letter please contact Caroline Shine at 407-894-7555 to schedule an informal meeting to resolve the above violation.