

File
Barber
El Paso

STATE OF COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
AIR POLLUTION CONTROL DIVISION
TELEPHONE: (303) 692-3150



Colorado Department
of Public Health
and Environment

CONSTRUCTION PERMIT

PERMIT NO: 96EP687

INITIAL APPROVAL

DATE ISSUED: SEPTEMBER 26, 1996

ISSUED TO: VITESSE SEMICONDUCTOR CORPORATION

THE SOURCE TO WHICH THIS PERMIT APPLIES IS DESCRIBED AND LOCATED AS FOLLOWS:

Semiconductor integrated circuit manufacturing facility located in Parcel #8, Arrows West Industrial Park, Colorado Springs, El Paso County, Colorado.

THE SPECIFIC EQUIPMENT OR ACTIVITY SUBJECT TO THIS PERMIT INCLUDES THE FOLLOWING:

This is a facility-wide permit covering all the equipment / activities at this facility. Details of equipment / activities are given Attachment A.

THIS PERMIT IS GRANTED SUBJECT TO ALL RULES AND REGULATIONS OF THE COLORADO AIR QUALITY CONTROL COMMISSION AND THE COLORADO AIR QUALITY CONTROL ACT C.R.S. (25-7-101 et seq), TO THOSE GENERAL TERMS AND CONDITIONS SET FORTH ON THE REVERSE SIDE OF THIS DOCUMENT AND THE FOLLOWING SPECIFIC TERMS AND CONDITIONS:

1. Fugitive emissions shall be controlled by the following practices:
 - a. Control techniques and work practices shall be implemented at all times to reduce volatile organic compound (VOC) emissions from fugitive sources. Control techniques and work practices include, but are not limited to:
 - (i) tight-fitting covers for open tanks;
 - (ii) covered containers for solvent wiping cloths;
 - (iii) proper disposal of dirty clean-up solvent.
 - b. Emissions of organic material released during clean-up operations, disposal, and other fugitive emissions shall be included when determining total emissions, unless the source owner or operator documents that the VOC's are collected and disposed of in a manner that prevents evaporation to the atmosphere.
2. At all times, including periods of start-up, shutdown, and malfunction, the facility and control equipment shall, to the extent practicable, be maintained and operated in a manner consistent with good air pollution prevention and control practices for minimizing emissions. Determination of whether or not acceptable operating and maintenance procedures are being used will be based on information available to the Division, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
3. This source is subject to the odor requirements of Regulation No. 2. ✓

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Construction Permit

VITESSE SEMICONDUCTOR CORPORATION

Permit No. 96EP687

Initial Approval

4. The permit number shall be marked on the subject equipment for ease of identification. ✓
5. Construction of this source must commence within 18 months of initial approval permit issuance or within 18 months of the start-up date stated in the application. If commencement does not occur within the stated time the permit will expire on _____
MARCH 26, 1997

(See General Condition No. 6., Item 1 on the reverse side of the first page of this permit.)

6. The natural gas fired boiler referenced under AIRS ID: 001 is subject to Regulation No. 6 - Standards of Performance for New Stationary Sources, Part A - Federal Register Regulations Adopted By Reference, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, as follows:

a. Reporting and recordkeeping as per § 60.48c

In addition, the following requirements of Regulation No. 6, Part A, Subpart A, General Provisions, apply.

- b. No article, machine, equipment or process shall be used to conceal an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere. (§ 60.12)
- c. Written notification of construction and initial startup dates shall be submitted to the Division as required under § 60.7.
- d. Records of startups, shutdowns, and malfunctions shall be maintained, as required under § 60.7.

A copy of the complete applicable subpart(s) is attached.

7. The manufacturer, model number and serial number of the subject equipment shall be provided to the Division prior to Final Approval. X
8. A revised Air Pollutant Emission Notice (APEN) shall be filed when a significant change in actual emissions occurs (above the level reported on the last APEN, submitted to the Division) as required by Regulation No.3, Part A.II.C.2 as per the timetable in Regulation No.3, Part A.II.C.3.
9. In accordance with C.R.S. 25-7-114.1, the Air Pollutant Emission Notices (APENs) associated with this permit are valid for a term of five years. Revised APENs shall be submitted no later than 30 days before the five year term expires.
10. This source shall be equipped with a packed-bed caustic scrubber capable of reducing uncontrolled emissions of acids / acid gases as follows: b
- nitric acid by at least 94 %;
acetic acid by at least 92 %;
all others by at least 95 %.
11. Compliance with annual limits shall be determined on a rolling twelve (12) month total. By the fifteenth day of each month a new twelve month total shall be calculated using the previous twelve months' data. The permit holder shall calculate monthly emissions and keep a compliance record on site for Division review. P
12. Visible emissions shall not exceed twenty percent (20%) opacity. ✓

Construction PermitVITESSE SEMICONDUCTOR CORPORATION

Permit No. 96EP687

Initial Approval

13. This facility's

consumption of various materials, including natural gas,

production and processing activities,

and operation of various equipment

shall be limited by the emission limits specified in Condition No. 14, and by the consumption and throughput limits listed in Attachment A. Records of the actual consumptions, production / process activities, and emissions of criteria and non-criteria pollutants shall be maintained by the applicant and made available to the Division for inspection upon request. Such records shall, at the minimum, contain details given in Attachment C.

14. Total facility emissions of air pollutants shall not exceed the following limitations (as calculated in the Division's preliminary analysis):

Particulate Matter < 10 μ m (PM₁₀): 1.39 tons per year and 0.4 pound per hour
Particulate Matter: 1.39 tons per year and 0.4 pound per hour
Nitrogen Oxides: 7.04 tons per year and 24.0 pounds per hour (generating set operating)
Volatile Organic Compounds: 29.53 tons per year and 6.8 pounds per hour
Carbon Monoxide: 2.97 tons per year and 5.64 pounds per hour (generating set operating)
Fluorides: 0.91 ton per year and 0.21 pound per hour

Note 1: The above activities result in the emissions of non-criteria reportable / hazardous air pollutants. The following emissions of such pollutants have been estimated. These emissions have been entered into the Division's emission inventory system.

CAS No.	Pollutant	Emission, lb/yr
7647-01-0	Hydrochloric Acid	572
7664-39-3	Hydrofluoric Acid	7
7697-37-2	Nitric Acid	59
7782-50-5	Chlorine	540
10294-34-5	Boron Trichloride	108

Note 2: Ozone depleting compounds are not used at this facility.

15. Prior to final approval being issued, the applicant shall submit to the Division for approval a compliance plan and record keeping format that will outline how the applicant will maintain compliance with the requirements of this permit.

By: Ram N. Seetharam
Ram N. Seetharam
Permit Engineer/Reviewer

By: Dennis M. Myers
Dennis M. Myers, P.E.
Construction Permits Unit
Stationary Sources Program
Air Pollution Control Division

VITESSE SEMICONDUCTOR CORPORATION

Permit No. 96EP687

Initial Approval

ATTACHMENT A

EQUIPMENT / ACTIVITIES / PROCESSES COVERED UNDER THIS PERMIT

AIRS ID	DESCRIPTION MAKE, MODEL, SERIAL NUMBER, DESIGN RATE SIZE, DIMENSIONS, THROUGHPUT, CONSUMPTION EMISSION CONTROLS	REMARKS SPECIFIC PROVISIONS
001	CLEAVER BROOKS, MODEL: CB, S/N: NOT AVAILABLE, NATURAL GAS FIRED HOT WATER BOILER, RATED AT 10,460,000 BTU PER HOUR. NATURAL GAS CONSUMPTION: 91,630,000 SCF PER YEAR	SUBJECT TO NSPS, Dc. COMPLIANCE PLAN
002	CATERPILLAR, MODEL AND S/N: NOT AVAILABLE, FUEL OIL FIRED RECIPROCATING INTERNAL COMBUSTION ENGINE, HEAT INPUT RATED AT 5,380,000 BTU PER HOUR. THIS POWERS AN ELECTRIC GENERATOR, AND USED IN EMERGENCY SITUATIONS ONLY. CONSUMPTION OF FUEL OIL #2 (SULFUR CONTENT: 0.15 %): 2,829 GALLONS PER YEAR.	
003	SEMICONDUCTOR INTEGRATED-CIRCUIT PROCESS DETAILS ARE GIVEN IN ATTACHMENT B. EMISSIONS OF ACIDS / ACID GASES CONTROLLED BY ONE (1) VIRON, MODEL & S/N: NOT AVAILABLE, PACKED-BED CAUSTIC SCRUBBER. CONTROL EFFICIENCY: 98 %	COMPLIANCE PLAN
004	STORAGE / TRANSFER OF VOLATILE ORGANIC LIQUIDS ONE (1) VERTICAL FIXED ROOF TANK, 1000 GALLON CAPACITY, 8' 0" DIAMETER X 5' 0" HEIGHT. THIS TANK IS USED FOR STORAGE OF WASTE SOLVENT (MIXTURE OF VARIOUS SOLVENTS USED) GENERATED FROM VARIOUS PROCESSES. THIS WASTE SOLVENT IS SENT OFF-SITE FOR PROCESSING / RECYCLING. THROUGHPUT: 17,250 GALLONS PER YEAR. ONE (1) VERTICAL FIXED ROOF TANK, 500 GALLON CAPACITY. THIS TANK IS USED FOR STORAGE OF FUEL OIL #2 USED IN THE ENGINE POWERING THE EMERGENCY ELECTRIC GENERATOR. THROUGHPUT: 2,829 GALLONS PER YEAR.	SUBJECT TO THE FOLLOWING PROVISIONS OF REGULATION No. 7 SECTION V. SUBSECTIONS: VI. B. 1 VI. B. 2 VII. C.

END OF ATTACHMENT A.

VITESSE SEMICONDUCTOR CORPORATION
Permit No. 96EP687
Initial Approval

ATTACHMENT B

DETAILS OF SEMICONDUCTOR PROCESS OPERATIONS

PROCESS & TOOL IDENTIFICATION	MAKE, MODEL, S/N:, etc.
PHOTOLITHOGRAPHY OPERATIONS	
RESIST COATER #1	SCREEN 60A TRACK
RESIST COATER #2	SCREEN 60A TRACK
RESIST DEVELOPER #1	SCREEN 60A TRACK
RESIST DEVELOPER #2	SCREEN 60A TRACK
ARC POLY COATER #1	SCREEN 60A TRACK
ARC POLY COATER #2	SCREEN 60A TRACK
SPIN-ON-GLASS (SOG) TRACK	SCREEN 60A TRACK
IMPLANTATION PROCESSES	
IMPLANTER #1	EATON, NV-8200P
IMPLANTER #2	EATON, NV-8200P
ETCHING OPERATIONS	
OXIDE ETCHER #1	LAM 4520-XL
OXIDE ETCHER #2	LAM4520-XL
ISO. OXIDE ETCHER #1	ISO CHAMBER ON LAM 4520-XL
ISO. OXIDE ETCHER #2	ISO CHAMBER ON LAM 4520-XL
METAL ETCHER #1	LAM TCP 9600
METAL ETCHER #2	LAM TCP 9600
GM ETCHER	LAM TCP 9400 (OR LAM TCP 9600)
BOE SILOX ETCH	MANUAL WET BENCH
HCL CLEAN	MANUAL WET BENCH
WET RESIST STRIP #1	UNIV. PLASTIC LINEAR
WET RESIST STRIP #2	UNIV. PLASTIC LINEAR
Ni ETCH	MANUAL WET BENCH
LIFT OFF AND H ₃ PO ₄ ETCH	NO EQUIPMENT USED, DRY ETCH

Construction Permit

VITESSE SEMICONDUCTOR CORPORATION

Permit No. 96EP687

Initial Approval

ATTACHMENT B [CONTINUATION - 1]	
CHEMICAL VAPOR DEPOSITION	
OXIDE / NITRIDE DEPOSIT #1	AMT 5000, (2 CHAMBERS)
OXIDE / NITRIDE DEPOSIT #2	AMT 5000, (2 CHAMBERS)
550°C BAKE	AMTECH / TEMPRESS 4 STACK
POLYAMIDE CURE	AMTECH / TEMPRESS 4 STACK
MAINTENANCE & EQUIPMENT CLEANING	
QUARTZ CLEAN BENCH	MANUAL WET BENCH
SOLVENT CLEAN SINK	MANUAL WET BENCH

END OF ATTACHMENT B.

VITESSE SEMICONDUCTOR CORPORATION

Initial Approval

FORMAT FOR MAINTAINING RECORDS OF ACTIVITIES,
CONSUMPTION OF MATERIALS AND TRACKING EMISSIONS FOR [SPECIFIC SOURCE]

1. * INCLUDE ALL NON-CRITERIA REPORTABLE POLLUTANTS, EVEN THOSE WHICH MAY BE BELOW REPORTABLE THRESHOLDS.
2. EMISSION FACTORS MUST BE BASED ON MATERIAL SAFETY DATA SHEETS (MSDS) OR OTHER DOCUMENTS SUCH AS CERTIFIED ANALYSIS REPORTS. MOST CURRENT MSDS AND/OR VOC DATA SHEETS MUST BE AVAILABLE AT SITE.
3. 12-MONTH ROLLING TOTALS SHALL NOT EXCEED THE EMISSION LIMITS CONTAINED IN THIS PERMIT.
4. MATERIALS CONSUMED: GIVE PRODUCT NAME AND COMPLETE IDENTIFICATION.
5. EMISSION CONTROL EFFICIENCY DOCUMENTATION MUST BE AVAILABLE AT SITE.