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

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

Mr. James R. Kolanek
Manager, Environmental Services
Harris Semiconductor
Post Office Box 883
Melbourne, Florida 32901

May 31, 1989

Enclosed is construction permit No. AC 05-161706 for Harris Semiconductor to consolidate mulitiple permits previously issued for Building No. 57, which is a source involved with soldering and plating of integrated circuit parts and is located at the permittee's existing facility on Palm Bay Road in the city of Palm Bay, Brevard County, Florida. This permit is issued pursuant to Section 403, Florida Statutes.

Any party to this permit has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this permit is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

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

Copy furnished to:

C. Collins, CF District
L. R. Hutker, P.E.

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on June 2, 1989.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52(9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Martha Wise June 2, 1989
Clerk Date

Final Determination

Harris Semiconductor
Brevard County
Palm Bay, Florida

Construction Permit Number:
AC 05-161706

Florida Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Quality Management
Central Air Permitting

May 25, 1989

Final Determination

The construction permit application has been reviewed by the Department. Public Notice of the Department's Intent to Issue was published in The Tribune on May 5, 1989. The Technical Evaluation and Preliminary Determination were available for public inspection at the DER's Central Florida District and Bureau of Air Quality Management offices.

There were no comments received on the proposed action. Therefore, it is recommended that the proposed construction permit be issued as drafted.

5-4-89
Orlando, FL

CAPE PUBLICATIONS, INC.

The Times
Published Weekly on Wednesday

THE TRIBUNE
Published Weekly on Wednesday

RECEIVED
MAY 9 1989
DER - BAQM

FLORIDA TODAY
Published Daily

STATE OF FLORIDA
COUNTY OF BREVARD

Before the undersigned authority personally appeared Linda L. Spicer who on oath says that he/she is Legal Advertising Clerk of the FLORIDA TODAY, a newspaper published in Brevard County, Florida; that the attached copy of advertising being a Legal Notice in the matter of permit to Harris Semiconductor in the Court was published in the FLORIDA TODAY NEWSPAPER in the issues of May 5, 1989

Affiant further says that the said FLORIDA TODAY NEWSPAPER is a newspaper published in said Brevard County, Florida and that the said newspaper has heretofore been continuously published in said Brevard County, Florida regularly as stated above, and has been entered as second class mail matter at the post office in COCOA, said Brevard County, Florida for a period of one year next preceeding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in said newspaper.

Linda L. Spicer

Sworn and subscribed to before me this 5th day of May A.D., 19 89

Notary Public
State of Florida at Large
My Commission Expires March 29, 1992

State of Florida
Department of
Environmental Regulation
Notice of Intent to Issue

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit to Harris Semiconductor, Post Office Box 883, Melbourne, Florida 32901, to consolidate multiple permits previously issued for Building No. 57, which is a source involved with soldering and plating of integrated circuit parts. The proposed project will occur at the applicant's existing facility in Brevard County, Florida. A determination of Best Available Control Technology (BACT) was not required. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and,

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel of the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday except legal holidays, at:

Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dept. of Environmental Regulation
Central Florida District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All

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

PERMITTEE:
Harris Semiconductor
P. O. Box 883
Melbourne, Florida 32901

Permit Number: AC 05-147321
Expiration Date: April 30, 1990
County: Brevard
Latitude/Longitude: 28° 01' 20" N
80° 36' 10" W
Project: Building 54
Manufacturing Lab

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code (FAC) Rules 17-2 and 17-4. 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:

For the permitting of hood type work stations for the manufacture of semiconductors in Building 54. Two 20,000 cfm and two 23,000 cfm horizontal cross-flow plastic saddle packed wet scrubbers, manufactured by Harrison, are installed to control VOC/solvent vapors. The building/source is located at the permittee's existing facility located on Palm Bay Road in the City of Palm Bay. The UTM coordinates are Zone 17, 538.7 km East and 3100.9 km North.

The source shall be in accordance with the permit application and plans, documents, amendments, and drawings except as otherwise noted in the General and Specific Conditions.

Attachments to be Incorporated:
1. Application to Construct Air Pollution Sources, DER Form 17-1.202(1), and Mr. James R. Kolanek's cover letter received March 3, 1988.
2. Mr. James R. Kolanek's letter with a processing fee received March 24, 1988.
3. Mr. C. H. Fancy's letter dated April 20, 1988.
4. Mr. James R. Kolanek's letter with attachments received May 20, 1988.
5. Mr. C. H. Fancy's letter dated June 6, 1988.
6. Mr. James R. Kolanek's letter and attachments received July 1, 1988.
7. Mr. James R. Kolanek's letter and addendum received September 12, 1988.

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

PERMITTEE:
Harris Semiconductor
P. O. Box 883
Melbourne, Florida 32901

Permit Number: AC 05-150794
Expiration Date: April 30, 1990
County: Brevard
Latitude/Longitude: 28° 01' 20" N
80° 36' 10" W
Project: Building 59
Manufacturing Lab

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code (FAC) Rules 17-2 and 17-4. 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:

For the permitting of hood type work stations for the manufacture of semiconductors in Building 59. A 24,000 cfm vertical counter-current flow wet scrubber, using polypropylene packing, and with a mist eliminator, manufactured by Beverly Pacific, is installed to control VOC/solvent vapors. A 40,000 cfm horizontal cross-flow wet scrubber, using polypropylene packing, and with a mist eliminator, manufactured by Beverly Pacific, is installed to control acid vapors. The building/source is located at the permittee's existing facility located on Palm Bay Road in the City of Palm Bay. The UTM coordinates are Zone 17, 538.7 km East and 3100.9 km North.

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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

PERMITTEE:
Harris Semiconductor
P. O. Box 883
Melbourne, Florida 32901

Permit Number: AC 05-147321
Expiration Date: April 30, 1990
County: Brevard
Latitude/Longitude: 28° 01' 20" N
80° 36' 10" W
Project: Building 54
Manufacturing Fab

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code (FAC) Rules 17-2 and 17-4. 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:

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5. Mr. C. H. Fancy's letter dated June 6, 1988.
6. Mr. James R. Kolanek's letter and attachments received July 1, 1988.
7. Mr. James R. Kolanek's letter and addendum received September 12, 1988.
8. Mr. James R. Kolanek's letter received October 4, 1988.

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

PERMITTEE:
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4. Mr. James R. Kolanek's letter received October 4, 1988.

HARRIS

RECEIVED
JUL 1 1988
DER - BAQM

June 29, 1988

Mr. C.H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
Florida Department of Environmental Regulation
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: C.H. Fancy Letter of June 6, 1988
Building 54 - Permit Consolidation AC 05-147321

Dear Mr. Fancy:

This letter is in reply to Harris Semiconductors' consolidated permit application AC 05-147321 and your letter of June 6, 1988. Enclosed for your review is the report entitled Harris Semiconductor, 1987 Solvent Material Balance, dated June 27, 1988.

Harris believes that the enclosed report supports our previous position that the annual air emissions from the facility are within the range represented by the permit application.
It is our understand that submittal of the enclosed information provides all of the outstanding information requested by the Florida Department of Environmental Regulation.

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

Sincerely,
HARRIS SEMICONDUCTOR

James R. Kolanek

James R. Kolanek
Manager, Environmental Services

c.c. A.T. Sawicki, FDER Orlando
Bruce Mitchell
CHF/BT

HARRIS SEMICONDUCTOR

1987 SOLVENT MATERIAL BALANCE

JUNE 27, 1988

TABLE OF CONTENTS

Introduction:

This report addresses the Harris Semiconductor facility and reflects the amounts of all VOC / solvents, purchased, reclaimed, disposed of off-site, discharged in waste water, or released to the atmosphere. This report covers the period of January 1, 1987 through December 31, 1987. All available sources of information were utilized. The following reports and sources of information were used in preparing this report:

1.) In-house Accounting Reports
2.) In-house COM Stock Reports
3.) Harris Waste Profiles
4.) Harris Waste Analysis Reports
5.) Shipping Manifests
    a.) Bulk Shipments
    b.) Drum Shipments
6.) ACE Air Monitoring Reports
7.) Daily Waste Water Reports
8.) Enviropact Lab Reports

The data was evaluated by comparing the chemical purchasing records with the known emission and shipping records. More detailed discussion of the data sources, data evaluation, error analysis, conclusions and recommendations are included in detail later in this report.

SUMMARY:

A similar report was prepared in 1987, which covered the period of calender year 1986. This was the most comprehensive attempt of this nature made to quantify the volume of VOC / solvents consumed by Harris Semiconductor and to identify their final disposition. Prior to the recent monitoring activities, it had been assumed that most of the chemicals were collected and transported off-site for ultimate disposal. Because the 1986 report, was the first attempt of this magnitude to reconcile this data much of the information was incomplete and suspect. Many of the recommendations proposed in the 1986 report, to improve the accuracy of the information, were implemented or are in the process of being implemented. Many of these improvements have increased the quality and accuracy of the 1987 report, which is far more comprehensive. As a result of these changes it is possible to draw more meaningful conclusions.

The following information is offered as a brief summary of

SUMMARY (cont.):

the detailed data which is included to document these results:

VOC's / Solvents Discharged by Source		
Waste Water	27,000	pounds
Air Emissions	262,000	pounds
Waste Shipments	584,000	pounds
Total	873,000	pounds
Chemicals Purchased	957,000	pounds
Quantity Variance	84,000	pounds
Percent Variance	8.8 %	

A comparison of the data would seem to indicate a high degree of accuracy. The percent variance number is presented for comparative purposes only. The data utilized in computing these figures are the most accurate available. However, there are a number of potential sources of error which would seem to indicate that the actual margin for error is greater than 9 percent. However, it is possible that the various sources of error cancel themselves out and yield a range of error of less than ten percent.

It is Semiconductor's intention to continue to reduce the potential for error in an attempt to continue to improve the quality of the data. A major improvement will be made in 1989 when the Title III SARA regulations require vendors to provide customers with more accurate data on the chemical composition of those chemicals which are purchased and are listed in the SARA regulations. This will improve some of data, but will not totally eliminate the inaccuracies relating to chemical composition due to the fact that not all of the chemicals of concern in this report are on the Title III list of chemicals.

DISCUSSION:

MATERIAL SAFETY DATA SHEETS:

Most of the chemicals used by Semiconductor in its manufacturing processes are not pure chemical compounds, but rather mixtures or trade name chemicals. Therefore, it is necessary to rely on the manufacturers' MSDS to obtain information on the specific components of the process chemicals used.

Many manufacturers consider the exact formulation of their products proprietary and therefore will provide only approximate concentrations for the specific components. The listed range of a particular component can be quite large. For purposes of this report when it was necessary to use a concentration range for a solvent the mid point of the range was used for purposes of calculation. This approach was utilized in an attempt to neither over nor under report on the quantity of chemical purchased.

WASTE PROFILES:

In 1984, Semiconductor began compiling and evaluating detailed chemical profiles of the specific waste streams generated by the manufacturing processes. These profiles are based on in house laboratory analysis. The chemical analysis is used to define a range for the individual components of the various constituents. These profiles are evaluated annually and changed to reflect any significant changes that may have occurred in the manufacturing processes. In addition, to evaluation of existing profiles, new profiles are added when a new process or chemical is introduced which does not fit any existing waste description. At the present time, there are 54 waste profiles that are managed by the environmental staff of Semiconductor.

Attachment 5 contains an example of a typical waste profile. As can be seen from the example, the profiles indicate a minimum and maximum range in percent for the individual constituents of concern. Some of these profiles are for very minor streams which are generated very infrequently. Others are wastes generated on a very regular basis.

WASTE ANALYSIS:

The most accurate data base on waste streams is currently on bulk shipments. Initially, this data base was created to insure the safe shipment of large quantities of chemicals over public roads by licensed transporters. A chemical analysis is performed on every bulk shipment.

These analysis accompany every bulk shipment which leaves the Semiconductor facility. The waste analysis is performed for these components which are likely to be present in the waste stream.

In addition to bulk shipments, Semiconductor collects and ships a significant amount of wastes in fifty-five gallon drums and smaller containers. Drummed wastes are collected at point of use locations and brought to a central location within the facility, where they are checked and temporarily stored prior to shipment. In 1987, Semiconductor shipped off site approximately 300,000 gallons of waste for disposal or recycle. Approximately 60 percent of this was in bulk shipments. The balance was in 55 gallon drums. This averages out to around 120 drums per month. The number of containers generated makes it impractical to analyze samples from every container. Therefore, drummed wastes are spot checked, and random samples are taken for analysis.

WASTE SHIPMENTS:

All shipments leaving Semiconductor's facility, whether sent for recycle or disposal, are accompanied by a Hazardous Waste Uniform Manifest. All current State, EPA, and DOT regulations are followed in the preparation, distribution, and retention of the waste manifests. In addition to the original hard copy retention of these records, detailed information is entered into a computer data base system for record retention, reporting, and tracking purposes. The information contained on the manifests was the primary source of information on those VOC/solvents shipped from Semiconductor for recycle or disposal off-site. Quantities of chemicals leaving the facility in bulk shipment were recorded in gallons based on visual inspection of the tankers before and after they had been filled. Quantities of chemicals leaving the facility in drums were based on an accurate drum count and the assumption that each drum contained 55 gallons of material.

Attachment 1 contains a list of all waste shipments made from Semiconductor during calender year 1987. All waste shipments with the following EPA ID's were included in the calculations:

D001, F001, F002, F003, F004, F005

Waste chemicals with the previous RCRA ID numbers, as a rule, will meet the Florida DER definition of VOCs. There were a number of lab pac shipments which may have met this definition but were not included in the calculation. The total volume of these materials was well under 100 gallons and would have had little if any impact on the outcome of the material balance.

HARRIS SEMICONDUCTOR
1987 SOLVENT MATERIAL BALANCE
PAGE 7

WASTE SHIPMENTS (cont.):

Once the above information was compiled, the waste streams with the appropriate RCRA ID were selected from the waste profile list and compared with the shipping records. Table I was then prepared in order to calculate the quantity of solvents shipped off site. Total pounds shipped were then calculated from the gallons on the shipping records and the specific gravity information on the waste profile. If no specific gravity data was available, then a gravity of 0.9 was assumed. The following is an example of the calculation steps which were followed:

1987 shipments for Stream H005 - 28260 gallons.

28260 gal x 8.34 lbs/gal x 0.9 (sg) = 212,199 lbs.

H005 contains a minimum of 20 % acetone and a maximum of 55% acetone. From the waste profile. See Attachment 5.

212,000 lbs x 0.20 = 42,400 lbs acetone min.
212,000 lbs x 0.55 = 116,000 lbs acetone max.

This procedure was then repeated for each component on every waste profile. Like components were then added together to obtain the total quantities for each compound. The mid point quantity for each compound was then calculated. The following example is for acetone.

214,776 lbs of acetone (max.) shipped under all Profiles
79,034 lbs of acetone (min.) shipped under all Profiles

Mid point value = ((214,000 lbs - 79,034 lbs)/2) + 79,034
= 146,905 lbs of acetone

Once the total pounds of each waste was calculated, this information was used to calculate the quantity of the individual components present in the waste stream. During this stage of the calculation the minimum, maximum, and the calculated mean from the waste profiles was utilized. Using this information, it was determined that the minimum amount of solvents in the waste shipments would have been 266,000 pounds, the maximum amount would have been 901,000 pounds, and the average amount would have been 584,000 pounds. The average amount was used during the remainder of the report for comparison, because it is believed that it most accurately indicates the quantity of VOC/solvents which were shipped from Semiconductor for disposal or recycle.

WASTE WATER DISCHARGE:

Harris Semiconductor discharges it's Treated Industrial Waste Water in accordance with its Underground Injection Control Permit Number UC05-1265191. The industrial water treatment plant collects and treats all industrial water from the semiconductor manufacturing facility. All manufacturing and process support equipment discharges to the treatment plant and ultimately to the industrial deep well. There are no discharges to surface water or to POTWs from the facility. The only water discharged to the local POTW is water from the sanitary facility and cafeterias.

Attachment 2 contains flow and monitoring data from the treatment plant from the period of January 1, 1987 through December 31, 1987. During this time period the facility treated approximately 433 million gallons of water. Between February and December of 1987, Semiconductor monitored the waste water treatment plant to quantify potential VOC emissions. During this period, the samples were collected on a weekly basis and analyzed using EPA Methods 624 and 625 for priority pollutants and an additional selection of other compounds. Specifically, methanol, acetone, and IPA were also evaluated. Table II contains all of the parameters which had at least one positive response during the study. The average observed concentration was then utilized with the volume of water discharged to calculate the quantity of solvents which were discharge during the course of the year.

Table III lists the parameters which were included. The average flows during the month were used to calculate the quantity of solvents which were discharged during the respective months. These monthly volumes were then totaled to obtain the annual quantity discharged. The following is an example of the calculations which were utilized:

Average concentration of Acetone = 3538 ppb
= 3.54 ppm

3.54 ppb x 8.34 lbs / gal x 33.006 Mil Gal (jan) = 937.9 lbs

The above calculation was then repeated for each month of 1987. The monthly totals were then added. This same procedure was repeated for each parameter.

The information obtained indicated that during 1987 approximately 27,000 pounds of solvents were discharged in the industrial waste water. It should be noted that the trihalomethanes which were listed on table II, were present in the incoming water from the local drinking water utility.

These materials are not used in the manufacturing areas. Therefore, the loading of these compounds was not included in the 27,000 pounds which were calculated.

AIR EMISSIONS:

Between December 1986 and December 1987, Harris Semiconductor performed extensive monitoring of its point source discharges. Twenty one (21) different discharge points were monitored. Every point was monitored at least once during the monitoring program. In an attempt to evaluate the reliability of the monitoring results several of the larger sources were monitored more than once. Efforts were also taken to determine if there were any VOC / solvent emissions during the non-production hours. To accomplish this one source was monitoring on a Sunday when no production activities were scheduled.

All of the monitoring was performed by Air Consulting Engineers of Gainseville. Two different methods were employed. Method 25A utilizing a Flame Ionization Detector was the primary method of analysis. This method was selected because it was anticipated that due to the nature of the semiconductor manufacturing methods there would be very noticeable changes in the quantity of VOC emissions during the course of a normal shift. Some monitoring utilizing Total Organic Vapor collection tubes and GC/MS laboratory analysis to determine the exact chemical composition of the air stream was also performed. For the purposes of this report, Method 25A was superior because it enabled Harris to quantify the amount of VOCs which were being emitted far more accurately than the GC/MS. The on line monitoring capability of the FID allowed for the more accurate determination of the amount of VOC compounds which were potentially discharged over the course of the year.

Attachment 3 contains a list of the emission sources that were monitored during the course of the year along with the projected quantity of emissions which was calculated for each source. The emissions numbers were calculated utilizing the observed VOC emissions and the actual production schedule for the corresponding source. In addition, the observed non-production emissions loading was factored into the total yearly loading for each source. Based on the monitoring which was performed it was determined that the total emissions from the facility were approximately 262,000 pounds.

CHEMICAL INVENTORY:

During the months of December 1986 and January 1987, Harris Semiconductor conducted a detailed physical inventory of all chemicals currently in use at the facility.

This information has become the baseline for all process and process support chemicals used at the Palm Bay facility. This inventory was a joint project between Harris personnel in the Environmental, Health and Safety, and Quality Control Departments.

This survey became the basis for Semiconductors Master Chemical Inventory Data Base. This Data Base contains at the present time in excess of 2500 "chemicals". This does not mean that 2500 compounds are currently in use at the facility. In stead, it means that 2500 chemical names must be managed. This problem is caused by the use of trade name chemicals. More than one half of the chemicals used at Semiconductor are Trade Name Chemicals. The chemicals are generally a mixture of several components. This results in a compounding effect when the information is interred into a data management system. For example, Harris may use 10 trade name chemicals which all have the same four components in varying concentrations. This will result not in the management of four or ten chemicals but fourteen different chemicals.

Once all the chemicals had been identified the project of determining the quantity of each used during 1987 was first undertaken. The first attempt at this project was to utilize receiving records from the Shipping and Receiving Department. After overcoming several computer problems encountered retrieving the data, it was confirmed that only those chemicals entering the facility on the COM Stock system were included in the data base which was being recovered. This required utilization of an alternate data base to accomplish the objective. The Purchase Order Data Base was utilized to obtain the required information.

All information on materials from known chemical vendors and materials containing an appropriate chemical commodity code were recovered for the period of January 1, 1987 through December 31, 1987. Once this information had been obtained the "chemicals" had to be converted to appropriate units of measurement. The chemical records contain various units of measurement (i.e. gallons, pints, cubic feet, pounds, kilograms, drums, cases, etc.). These had to be converted to a common unit of measurement.

After recovery and conversion of the data described above, the most complicated part of the project had to be undertaken. This was the conversion of the trade name chemicals into their appropriate components. This was accomplished by loading the purchase records into the Chemical Inventory Data Base which lists the components for all chemicals and their known or estimated concentration. This part of the project was complicated by the fact that the material description from the purchasing records was not always exactly the same as the description in the chemical data base. This resulted in the need for a great deal of manual confirmation and data entry in order to load the purchased amounts into the computer data base system. This part of the program could be significantly improved if a unique code could be included on the purchase orders and matched to an exact code in the chemical data base system.

Once the above work had been accomplished, the information presented on Tables IV and V was tabulated. Once this information had been compiled, the raw data was reviewed and a determination was made as to whether or not the material was a solvent. Those chemicals which were determined to be solvents were assigned a code of "S". The data base was then sorted and totaled for all compounds which were identified as solvents. The chemicals listed on Table IV totaled 277,372 pounds of solvents received at the facility. The chemicals listed on Table V totaled 679,415 pounds of solvents received at the facility. This resulted in a total of approximately 957,000 pounds of solvents being received by Semiconductor during 1987. As a point of information, two tables are presented in this section because the chemicals on Table V were being reported in the facility's July 1, 1988 Title III SARA report. It was therefore easier to list these tables separately than to combine the data.

The accuracy of this information is primarily limited by the accuracy of the component concentration available from the vendors on trade name chemicals. As the accuracy of this information the accuracy of the chemical data base should also improve.

It was assumed during the course of this material balance that no net increase or decrease in the physical on site inventory took place during the course of the year. In other words it was assumed that the volume of chemicals received were used. Harris Semiconductor has extended significant amounts of time and energy in recent years in programs, such as JIT, to control inventories of materials. Just in Time (JIT) is the principle of delivering the material to the facility and work area just prior to the time that it is needed. This eliminates the need for large inventories of materials in the work place.

CONCLUSIONS AND RECOMMENDATIONS:

This report has been prepared and submitted to the Department of Environmental Regulations in accordance with Harris' previous agreements with the Department. The report has been prepared with the most accurate information available. Harris believes that the information accurately represents the VOC/solvents which were used and their ultimate disposition.

Harris believes that the air emissions data and the waste water discharge data is the most accurate data available. This information is based on actual monitoring data. Only a very limited number of required assumptions were employed. Harris intends to continue with its in house monitoring programs in these two areas. Very few modifications to the procedures are anticipated. Based on prior monitoring and other technical information, Harris is confident that the most accurate method of quantifing the facilities actual emissions is through a technically sound monitoring program.

The hazardous waste data is accurate within the range of assumptions that were made. If any errors have been made in the evaluation of the data, it has been on the conservative side. In other words, if any inaccuracies exist they have been on the side of underestimating the quantities of VOC/solvents which were sent off-site for disposal or recycling. Harris has plans to improve the accuracy in this area by more frequent analysis of drummed waste and the development of a computer data base system for the waste profile analysis.

The chemical data to the best of our knowledge is as accurate as is possible. The areas where we would like to see the most improvement, are the quality of the information on trade name chemicals and our ability to more easily retrieve the data from our internal information systems. Harris environmental, purchasing, accounting, safety, and MIS personnel will be meeting in the near future in an effort to reduce the problems we have encountered in the retrieval of the data. A far more difficult problem is the issue of trade name chemicals. As was indicated in the report, this will improve slightly the vendors are required to provide information on concentrations for chemicals on the SARA list. This problem will undoubtedly will be an issue for many years. Until manufacturers provide more accurate information on the concentrations of VOC/solvents the quality of our data connot be improved. Unfortunately, any real improvements, in this area, are outside of Harris' control.

HARRIS SEMICONDUCTOR

CALENDAR YEAR 1987

VOC – MATERIAL BALANCE

ATTACHMENT 1

WASTE SHIPMENTS OFFSITE

COMPOUND	HARRIS ID COMMON NAME	H005 MIX SOLV	H010 RESIST	H011 MICRO	H012 TRICH	H013 FREON	H025 WAT/SOLV	H026 MIX SOLV	H039 1165	H040 MARKEM	H041 ACET/TRI	H042 GLYCER	H43 WAT/MICRO	H045 RESIST	TOTAL AMOUNT SHIPPED		
	1987 GALLONS	28260	9955	23980	1320	2530	18904	10725	55	55	55	165	5115	440	101559		
	1987 TONS	106	31.5	99.9	7.2	13.8	78.8	39.5	0.25	0.25	0.28		21.3	0.24	399.02		
	1987 POUNDS	212000	63000	199800	14400	27600	157600	79000	500	500	560	0	42600	480	798040		
															Min.	Max.	Avg.
ACETONE		42400	630	19980	0	0	0	15800	0	0	224	0	0	0	79034		
		116600	6300	59940	0	0	0	31600	0	0	336	0	0	0		214776	146905
METHANOL		21200	630	0	0	0	1576	3950	0	0	0	0	0	0	27356		
		84800	3150	0	0	0	7880	19750	0	0	0	0	0	0		115580	71468
IPA		21200	0	0	0	0	1576	3950	0	0	0	0	0	0	26726		
		84800	0	0	0	0	7880	19750	0	0	0	0	0	0		112430	69578
N-BUTYL ACETATE		4240	630	0	0	0	0	0	10	150	0	0	0	0	5030		
		84800	3150	0	0	0	0	0	25	200	0	0	0	0		88175	46603
CELLOSOLVE ACE		2120	25200	1998	0	0	1576	790	1	5	0	0	0	0	31690		
		10600	44100	9990	0	0	7880	3950	10	15	0	0	0	0		76545	54117
XYLENE		2120	9450	1998	0	0	0	3950	0	0	0	0	0	0	17518		
		21200	25200	9990	0	0	0	7900	0	0	0	0	0	0		64290	40904
TOLUNE		2120	0	0	0	0	0	0	0	0	0	0	0	0	2120		
		21200	0	0	0	0	0	0	0	0	0	0	0	0		21200	11660
HMDS		0	0	0	0	0	0	3950	0	0	0	0	0	0	3950		
		0	0	0	0	0	0	3950	0	0	0	0	0	0		3950	3950
ETHYL ACETATE		0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		0	0	0	0	0	0	0	0	0	0	0	0	0		0	0
FREON		0	0	0	0	26220	0	1580	0	0	0	0	0	0	27800		
		0	0	0	0	26220	0	7900	0	0	0	0	0	0		34120	30960
TRICHLORDETHANE		0	0	0	11520	0	0	3950	0	0	224	0	0	0	15694		
		0	0	0	11520	0	0	7900	0	0	336	0	0	0		19756	17725
PERCH		0	0	1998	0	0	0	0	0	0	0	0	0	0	1998		
		0	0	19980	0	0	0	0	0	0	0	0	0	0		19980	10989
AROMATICS		3180	0	1998	0	0	0	0	0	0	0	0	0	0	5178		
		21200	0	9990	0	0	0	0	0	0	0	0	0	0		31190	18184
ALAPHATICS		3180	630	1998	0	0	0	0	0	0	0	0	0	0	5808		
		21200	6300	9990	0	0	0	0	0	0	0	0	0	0		37490	21649
MISC.		2120	0	9990	0	0	0	3950	425	5	0	0	0	0	16490		
		10600	0	29970	0	0	0	19750	475	15	0	0	852	0		61662	39076

MINIMUM SHIPPED (LBS.)	266392		
MAXIMUM SHIPPED (LBS.)		901144	
AVERAGE SHIPPED (LBS.)			583768

TABLE I

date	transporter	tsdf	common name	dot description	dot class	un/na	epa id	gallons
10-Sep-87	hwc		diesel	na	na	na	na	55.00
-- Count								1
-- Sum								55.00
29-Sep-87	hwc		used oil	na	na	na	na	165.00
21-May-87	hwc		used oil	na	combust.	na	na	55.00
14-Oct-87	hwc		used oil	na	na	na	na	55.00
02-Jun-87	hwc		used oil	na	combust.	na1270	na	110.00
19-Jun-87	hwc		used oil	na	combust.	na1270	na	110.00
13-Jan-87	hwc		used oil	na	na	na	na	220.00
07-Jul-87	hwc		used oil	na	na	un2710	na	55.00
07-Apr-87	hwc		used oil	na	na	na	na	495.00
05-May-87	hwc		used oil	na	na	na	na	55.00
10-Mar-87	hwc		used oil	na	na	na	na	55.00
-- Count								10
-- Sum								1375.00
02-Jun-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f001	110.00
08-Dec-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f001	110.00
27-Jan-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f001	165.00
24-Nov-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f001	55.00
07-Jul-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-a	na9189	f001	110.00
10-Nov-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f001	220.00
14-Oct-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f001	220.00
07-Apr-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f001	110.00
13-Jan-87	hwc	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f002	110.00
22-Sep-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f001	110.00
25-Aug-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-a	na9189	f001	275.00
22-Dec-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f001	165.00
19-Jun-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-a	na9189	f001	110.00
17-Feb-87	hwc	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f001	110.00
10-Mar-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f001	275.00
24-Mar-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f001	110.00
29-Sep-87	hwc,allw	allworth	freon	hazardous waste liquid, nos	org-e	na9189	f001	165.00
-- Count								17
-- Sum								2530.00
10-Mar-87	hwc,allw	allworth	glycerine	waste glycerine	non-haz	na	na	165.00
-- Count								1
-- Sum								165.00
18-Jun-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	d001	4500.00
22-Dec-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f003,5	385.00

date	transporter	tsdf	common name	dot description	dot class	un/na	epa id	gallons
25-Aug-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f003,5	495.00
29-Sep-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f003,5	110.00
10-Nov-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	d001	55.00
14-Oct-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f003,5	220.00
13-Jan-87	hwc	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	d001	715.00
24-Nov-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f001	440.00
15-Sep-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f003,5	6000.00
04-Aug-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f001	1375.00
21-Jul-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	d001	715.00
04-Aug-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f001	55.00
04-Aug-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f001	110.00
10-Nov-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f003,5	660.00
10-Feb-87	hwc	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	d001	6000.00
10-Sep-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	d001	495.00
12-Aug-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	d001	275.00
14-Dec-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f003,5	5760.00
27-Oct-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f003,5	770.00
29-Sep-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	d001	495.00
27-Oct-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	d001	165.00
08-Dec-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f003,5	330.00
27-Jan-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	d001	550.00
22-Sep-87	hwc,allw	allworth	mixed solv	waste flammable liquid, nos	flammable	un1993	f003,5	110.00
-- Count								24
-- Sum								30785.00

10-Nov-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	385.00
10-Mar-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	660.00
24-Mar-87	hwc,allw	allworth	resist	Waste flammable liquid, nos	flammable	un1993	d001	660.00
27-Oct-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	440.00
17-Feb-87	hwc	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	660.00
19-Jun-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	660.00
05-May-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	550.00
08-Dec-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	165.00
29-Sep-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	275.00
21-May-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	330.00
13-Jan-87	hwc	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	440.00
04-Aug-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	f001	220.00
22-Dec-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	440.00
22-Sep-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	220.00
24-Nov-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	330.00
07-Jul-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	385.00
27-Jan-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	385.00
25-Aug-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	440.00
02-Jun-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	330.00
12-Aug-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	330.00
21-Jul-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	440.00
14-Oct-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	550.00
07-Apr-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	d001	385.00
10-Sep-87	hwc,allw	allworth	resist	waste flammable liquid, nos	flammable	un1993	f003,5	275.00
-- Count								24

date	transporter	tsdf	common name	dot description	dot class	un/na	epa id	gallons
-- Sum								9955.00
17-Feb-87	hwc	allworth	trich	waste 1,1,1 trichloroethane	ora-a	un2831	f001	55.00
24-Mar-87	hwc,allw	allworth	trich	waste 1,1,1 trichloroethane	ora-a	un2831	f001	55.00
07-Jul-87	hwc,allw	allworth	trich	waste 1,1,1 trichloroethane	ora-e	un2831	f001	110.00
22-Dec-87	hwc,allw	allworth	trich	waste 1,1,1 trichloroethane	ora-a	un2831	f001	165.00
22-Sep-87	hwc,allw	allworth	trich	waste 1,1,1 trichloroethane	ora-a	un2831	f001	110.00
13-Jan-87	hwc	allworth	trich	waste 1,1,1 trichloroethane	ora-a	un2831	f001	55.00
25-Aug-87	hwc,allw	allworth	trich	waste 1,1,1 trichloroethane	ora-e	un2831	f001	110.00
08-Dec-87	hwc,allw	allworth	trich	waste 1,1,1 trichloroethane	ora-a	un2831	f001	55.00
24-Nov-87	hwc,allw	allworth	trich	waste 1,1,1 trichloroethane	ora-a	un2831	f001	165.00
02-Jun-87	hwc,allw	allworth	trich	waste 1,1,1 trichloroethane	ora-a	un2381	f001	55.00
05-May-87	hwc,allw	allworth	trich	waste 1,1,1 trichloroethane	ora-a	un2831	f001	55.00
14-Oct-87	hwc,allw	allworth	trich	waste 1,1,1 trichloroethane	ora-a	un2831	f001	110.00
10-Mar-87	hwc,allw	allworth	trich	waste 1,1,1 trichloroethane	ora-a	un2831	f001	55.00
19-Jun-87	hwc,allw	allworth	trich	waste 1,1,1 trichloroethane	ora-e	un2381	f001	165.00
-- Count								14
-- Sum								1320.00
10-Sep-87	hwc,allw	allworth	used oil	na	na	na	na	55.00
-- Count								1
-- Sum								55.00
29-Sep-87	hwc	bayou metal	solder					110.00
-- Count								1
-- Sum								110.00
16-Apr-87	chem con	chem con	microstrip	waste flam., liq., corr., nos	flammable	un2924	d001,3	4840.00
-- Count								1
-- Sum								4840.00
06-May-87	chem con	chem met	microstrip	waste corrosive liquid, nos	corrosive	un1760	d002	385.00
30-Jun-87	chem con	chem met	microstrip	waste corrosive liquid, nos	corrosive	un1760	d002	385.00
26-May-87	chem con	chem met	microstrip	waste corrosive liquid, nos	corrosive	un1760	d002	165.00
-- Count								3
-- Sum								935.00
10-Sep-87	chem con	chem met	mixed acid	waste acid liquid, nos	corrosive	na1760	d002	4700.00

date	transporter	tsdf	common name	dot description	dot class	un/na	epa id	gallons
-- Count								1
-- Sum								4700.00
28-Jan-87	chem con	chem met	mixed hf	waste acid liquid, nos	corrosive	un1760	d002	4500.00
29-May-87	chem con	chem met	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	4900.00
13-Jan-87	chem con	chem met	mixed hf	waste acid liquid, nos	corrosive	un1760	d002	4500.00
-- Count								3
-- Sum								13900.00
02-Sep-87	chem con	chem met	water/micro	waste corrosive liquid, nos	corrosive	un1760	d002	385.00
24-Nov-87	chem con	chem met	water/micro	waste corrosive liquid, nos	corrosive	un1760	d002	110.00
10-Nov-87	chem con	chem met	water/micro	waste corrosive liquid, nos	corrosive	un1760	d002	220.00
17-Feb-87	chem con	chem met	water/micro	waste corrosive liquid, nos	corrosive	un1760	d002	495.00
15-Dec-87	chem con	chem met	water/micro	waste corrosive liquid, nos	corrosive	un1760	d002	220.00
27-Oct-87	chem con	chem met	water/micro	waste corrosive liquid, nos	corrosive	un1760	d002	330.00
11-Mar-87	chem con	chem met	water/micro	waste corrosive liquid, nos	corrosive	un1760	d002	275.00
05-Apr-87	chem con	chem met	water/micro	waste corrosive liquid, nos	corrosive	un1760	d002	220.00
29-Sep-87	chem con	chem met	water/micro	waste corrosive liquid, nos	corrosive	un1760	d002	330.00
31-Jul-87	chem con	chem met	water/micro	waste corrosive liquid, nos	corrosive	un1760	d002	220.00
14-Jan-87	chem con	chem met	water/micro	waste corrosive liquid, nos	corrosive	un1760	d002	1155.00
16-Oct-87	chem con	chem met	water/micro	waste corrosive liquid, nos	corrosive	un1760	d002	220.00
-- Count								12
-- Sum								4180.00
16-Mar-87	cwm	cwm	ammon persul	waste ammonium persulfate	oxidizer	un1444	na	55.00
-- Count								1
-- Sum								55.00
15-Sep-87	cwm	cwm	arsen cont	hazardous waste solid, nos	ora-e	na9189	d4,6,7,8,	220.00
18-Jun-87	cwm	cwm	arsen cont	hazardous waste solid, nos	ora-e	na9189	d467811	165.00
12-Feb-87	cwm	cwm	arsen cont	hazardous waste solid, nos	ora-e	na9189	d4,6,7,8,	165.00
16-Mar-87	cwm	cwm	arsen cont	hazardous waste solid, nos	ora-e	na9189	d467811	110.00
-- Count								4
-- Sum								660.00
15-Sep-87	cwm	cwm	chrom triox	waste acid liquid, nos	corrosive	na1760	d002,7	220.00
12-Feb-87	cwm	cwm	chrom triox	waste acid liquid, nos	corrosive	na1760	d002,7	110.00
18-Jun-87	cwm	cwm	chrom triox	waste acid liquid, nos	corrosive	na1760	d002,7	165.00
16-Mar-87	cwm	cwm	chrom triox	waste acid liquid, nos	corrosive	na1760	d002,7	55.00

date	transporter	tsdf	common name	dot description	dot class	un/na	epa id	gallons
-- Count								4
-- Sum								550.00
15-Jan-87	chem con	cwm	cont. soil	hazardous waste solid, nos	orm-e	na9189	na	0.00
19-Jan-87	chem con	cwm	cont. soil	Hazardous waste solid, nos	orm-e	na9189	na	0.00
19-Jan-87	chem con	cwm	cont. soil	Hazardous waste solid, nos	orm-e	na9189	na	0.00
15-Jan-87	chem con	cwm	cont. soil	hazardous waste solid, nos	orm-e	na9189	na	0.00
-- Count								4
-- Sum								0.00
23-Dec-87	cwm	cwm	copp sulf	waste corrosive liquid, nos	corrosive	un1760	d002	55.00
16-Mar-87	cwm	cwm	copp sulf	waste corrosive liquid, nos	corrosive	un1760	d002	55.00
18-Jun-87	cwm	cwm	copp sulf	waste corrosive liquid, nos	corrosive	un1760	d002	55.00
12-Feb-87	cwm	cwm	copp sulf	waste corrosive liquid, nos	un1760	un1760	d002	55.00
-- Count								4
-- Sum								220.00
16-Mar-87	cwm	cwm	diesel/soil	hazardous waste solid, nos	orm-e	na9189	na	110.00
-- Count								1
-- Sum								110.00
16-Mar-87	cwm	cwm	hcl	waste hydrochloric acid	corrosive	un1789	d002	55.00
-- Count								1
-- Sum								55.00
15-Sep-87	cwm	cwm	lab pac	waste potassium permanganate	oxidizer	un1490	d001	55.00
15-Sep-87	cwm	cwm	lab pac	hazardous waste liquid, nos	orm-e	na9189	u122	55.00
15-Sep-87	cwm	cwm	lab pac	waste flammable liquid, nos	flammable	un1993	d1,3,u002	55.00
15-Sep-87	cwm	cwm	lab pac	hazardous waste solid, nos	orm-e	na9189	d006	55.00
15-Sep-87	cwm	cwm	lab pac	non hazaardous waste	na	na	na	55.00
15-Sep-87	cwm	cwm	lab pac	waste corrosive liquid, nos	corrosive	un1760	d002,u052	55.00
15-Sep-87	cwm	cwm	lab pac	waste poisonous liquid, nos	poison b	un2810	p106,d004	55.00
15-Sep-87	cwm	cwm	lab pac	waste corrosive liquid, nos	corrosive	un1760	d002,3	55.00
15-Sep-87	cwm	cwm	lab pac	waste carbon tetrachloride	orm-a	na1846	u211	110.00
15-Sep-87	cwm	cwm	lab pac	waste corrosive liquid, nos	corrosive	un1760	d002	110.00
15-Sep-87	cwm	cwm	lab pac	waste methylene chloride	orm-a	un1593	u080	110.00
15-Sep-87	cwm	cwm	lab pac	hazardous waste liquid, nos	orm-e	na9189	d007	55.00
15-Sep-87	cwm	cwm	lab pac	waste chloroform	orm-a	un1888	u044	55.00
15-Sep-87	cwm	cwm	lab pac	hazardous waste liquid, nos	orm-e	na9189	d008	55.00
15-Sep-87	cwm	cwm	lab pac	waste orm-a, nos	orm-a	na1693	u211,u044	110.00

date	transporter	tsdf	common name	dot description	dot class	un/na	epa id	gallons
15-Sep-87	cwm	cwm	lab pac	waste flammable liquid, nos	flammable	un1993	u162,d1,3	55.00
15-Sep-87	cwm	cwm	lab pac	waste battery, wet	corrosive	un2794	d002	110.00
15-Sep-87	cwm	cwm	lab pac					116.00
15-Sep-87	cwm	cwm	lab pac	waste oxidizer, nos	oxidizer	un1479	d001,3	55.00
15-Sep-87	cwm	cwm	lab pac	non hazardous waste	na	na	na	55.00
15-Sep-87	cwm	cwm	lab pac	waste battery, wet	corrosive	un2795	d002	55.00
15-Sep-87	cwm	cwm	lab pac	waste alkaline liquid, nos	corrosive	na1719	d002	55.00
15-Sep-87	cwm	cwm	lab pac	waste flammable liquid, nos	flammable	un1993	d001	55.00
-- Count								23
-- Sum								1601.00
15-Sep-87	cwm	cwm	mercury	waste mercury metallic	org-b	un2809	d009,u151	110.00
18-Jun-87	cwm	cwm	mercury	waste mercury metallic	org-b	na2809	d009	110.00
-- Count								2
-- Sum								220.00
18-Jun-87	cwm	cwm	mixed solv	waste flammable liquid, nos	flammable	un1993	f001,3	880.00
16-Mar-87	cwm	cwm	mixed solv	waste flammable liquid. nos	flammable	un1993	f001,3	1320.00
-- Count								2
-- Sum								2200.00
19-Jun-87	cwm	cwm	phosp	waste phosphorus,amporphous	flammable	un1338	d001	55.00
-- Count								1
-- Sum								55.00
13-Jan-87	chem con	cwm	soil	hazardous waste solid, nos	org-e	na9189	na	0.00
13-Jan-87	chem con	cwm	soil	hazardous waste solid, nos	org-e	na9189	na	0.00
-- Count								2
-- Sum								0.00
15-Sep-87	cwm	cwm	tin plate	waste sulfuric acid, spent	corrosive	un1832	d002,8	275.00
18-Jun-87	cwm	cwm	tin plate	waste sulfuric acid, spent	corrosive	un1832	d002,8	220.00
12-Feb-87	cwm	cwm	tin plate	waste sulfuric acid, spent	corrosive	un1832	d002,8	330.00
23-Dec-87	cwm	cwm	tin plate	waste sulfuric acid, spent	corrosive	un1832	d002,7	220.00
16-Mar-87	cwm	cwm	tin plate	waste sulfuric acid, spent	corrosive	un1832	d002,8	275.00
-- Count								5
-- Sum								1320.00

date	transporter	tsdf	common name	dot description	dot class	un/na	epa id	gallons
23-Apr-87	chem con	cwm	water/solv	hazardous waste liquid, nos	orm-e	na9189	f001	3500.00
23-Dec-87	cwm	cwm	water/solv	hazardous waste liquid, nos	orm-e	na9189	f003	990.00
04-Mar-87	chem con	cwm	water/solv	hazardous waste liquid, nos	orm-e	na9189	f003	5000.00
12-Feb-87	cwm	cwm	water/solv	hazardous waste liquid, nos	oem-e	na9189	f003	990.00
16-Feb-87	chem con	cwm	water/solv	hazardous waste liquid, nos	orm-e	na9189	f003	5000.00
16-Mar-87	cwm	cwm	water/solv	hazardous waste liquid, nos	orm-e	na9189	f003	330.00
03-Aug-87	chem con	cwm	water/solv	hazardous waste liquid, nos	orm-e	na9189	f003	3094.00
-- Count								7
-- Sum								18904.00
07-Oct-87	cyl recon	cyl recon	bf3 cyl	waste boron trifluoride	non flam	un1008	d002	0.00
-- Count								1
-- Sum								0.00
07-Oct-87	cyl recon	cyl recon	cl2 cly	waste chlorine	non flam	un1017	d002	0.00
-- Count								1
-- Sum								0.00
07-Oct-87	cyl recon	cyl recon	h2s cyl	waste hydrogen sulfide	flammable	un1053	u135	0.00
-- Count								1
-- Sum								0.00
07-Oct-87	cyl recon	cyl recon	n2 cyl	waste nitrogen	non flam	un1066	x905	0.00
-- Count								1
-- Sum								0.00
24-Feb-87	chem con	eei	1165	waste corrosive liquid, nos	corrosive	un1760	d002	55.00
-- Count								1
-- Sum								55.00
11-Mar-87	chem con	eei	8050	waste flammable liquid, nos	flammable	un1993	d001	55.00
-- Count								1
-- Sum								55.00

date	transporter	tsdf	common name	dot description	dot class	un/na	epa id	gallons
14-Jan-87	chem con	eei	acet/tric	waste flammable liquid, nos	flammable	un1993	d001	55.00
-- Count								1
-- Sum								55.00
24-Feb-87	chem con	eei	cool twr sld	hazardous waste solid, nos	org-e	na9189	d002	605.00
-- Count								1
-- Sum								605.00
24-Nov-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002	1265.00
16-Oct-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002	1100.00
17-Feb-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002	1705.00
10-Nov-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002	990.00
24-Feb-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002	330.00
26-May-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002,6	770.00
29-Sep-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002	1155.00
30-Jun-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002,6	1595.00
27-Oct-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002	715.00
31-Jul-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002	1210.00
03-Apr-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002,6	1265.00
11-Mar-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002,006	550.00
06-May-87	chem con	eei	developer	waste corrosive lqiuid, nos	corrosive	un1760	d002,6	1210.00
15-Dec-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002	1265.00
02-Sep-87	chem con	eei	developer	waste corrosive liquid, nos	corrosive	un1760	d002	1210.00
-- Count								15
-- Sum								16335.00
02-Sep-87	chem con	eei	fixer	hazardous waste liquid, nos	corrosive	na9189	d006,11	55.00
30-Jun-87	chem con	eei	fixer	hazardous waste liquid, nos	org-e	na9189	d006,11	55.00
26-May-87	chem con	eei	fixer	hazardous waste liquid, nos	org-e	na9189	d006,11	55.00
03-Apr-87	chem con	eei	fixer	hazardous waste liquid, nos	org-e	na1989	d006,11	55.00
29-Sep-87	chem con	eei	fixer	hazardous waste liquid, nos	org-e	na9189	d006,11	55.00
14-Jan-87	chem con	eei	fixer	hazardous waste liquid, nos	org-e	na9189	d006,011	110.00
-- Count								6
-- Sum								385.00
14-Jan-87	chem con	eei	formal.	waste formaldehyde solution	org-a	un2209	na	330.00
29-Sep-87	chem con	eei	formal.	waste formaldehyde solution	org-a	na9189	na	55.00
-- Count								2
-- Sum								385.00

date	transporter	tsdf	common name	dot description	dot class	un/na	epa id	gallons
29-Sep-87	chem con	eei	marken	waste flammable liquid, nos	flammable	un1993	d001	55.00
14-Jan-87	chem con	eei	marken	waste flammable liquid, nos	flammable	un1993	d001	165.00
-- Count								2
-- Sum								220.00
24-Nov-87	chem con	eei	microstrip	waste flam., liq., corr., nos	flammable	un2924	d001,2	825.00
16-Oct-87	chem con	eei	microstrip	waste flam., liq., corr., nos	flammable	un2924	d001,2	2310.00
15-Dec-87	chem con	eei	microstrip	waste flam., liq.,corr., nos	flammable	un2924	d001,2	1100.00
14-Jan-87	chem con	eei	microstrip	waste flam., liq., corr., nos	flammable	un2924	d001,002	2090.00
27-Oct-87	chem con	eei	microstrip	waste flam., liq., corr., nos	flammable	un1924	d001,2	605.00
15-Oct-87	chem con	eei	microstrip	waste flam., liq., corr., nos	flammable	un2924	d001,2	1980.00
10-Nov-87	chem con	eei	microstrip	waste flam., liq., corr., nos	flammable	un2924	d001,2	715.00
-- Count								7
-- Sum								9625.00
11-Nov-87	chem con	eei	mixed acid	waste acid liquid, nos	corrosive	na1760	d002	5000.00
16-Dec-87	chem con	eei	mixed acid	waste acid liquid, nos	corrosive	na1760	d002	5000.00
26-May-87	chem con	eei	mixed acid	waste acid liquid, nos	corroisve	na1760	d002,8	55.00
21-Apr-87	chem con	eei	mixed acid	waste acid liquid, nos	corrosive	na1760	d002	4700.00
25-Sep-87	chem con	eei	mixed acid	waste acid liquid, nos	corrosive	na1760	d002	4700.00
11-Mar-87	chem con	eei	mixed acid	waste acid liquid, nos	corrosive	un1760	d002	55.00
19-Oct-87	chem con	eei	mixed acid	waste acid liquid, nos	corrosive	un1760	d002	5000.00
14-May-87	chem con	eei	mixed acid	waste acid liquid, nos	corrosive	na1760	d002	4700.00
02-Sep-87	chem con	eei	mixed acid	waste acid liquid, nos	corrosive	na1760	d002,8	55.00
15-Jul-87	chem con	eei	mixed acid	waste acid liquid, nos	corrosive	na1760	d002	4700.00
14-Jan-87	chem con	eei	mixed acid	waste acid liquid, nos	corrosive	un1760	d002	110.00
19-Mar-87	chem con	eei	mixed acid	waste acid liquid, nos	corrosive	na1760	d002	4500.00
11-Aug-87	chem con	eei	mixed acid	waste acid liquid, nos	corrosive	un1760	d002	4700.00
-- Count								13
-- Sum								43275.00
18-Feb-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	4700.00
05-May-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	4800.00
12-Mar-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	4700.00
13-Jul-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	4500.00
05-Nov-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	5000.00
18-Nov-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	4300.00
21-Oct-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	5000.00
14-Dec-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	5000.00
29-Jul-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	5000.00
25-Feb-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	0.00
10-Jun-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	5000.00
04-Jun-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	5000.00
14-Apr-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	4800.00
08-Sep-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	4700.00
20-Aug-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	5275.00

date	transporter	tsdf	common name	dot description	dot class	un/na	epa id	gallons
01-Oct-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	4700.00
25-Mar-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	4900.00
03-Mar-87	chem con	eei	mixed hf	waste acid liquid, nos	corrosive	na1760	d002	5000.00
-- Count								18
-- Sum								82375.00
14-Jan-87	chem con	eei	scrub sld	hazardous waste solid, nos	orm-e	na9189	na	220.00
-- Count								1
-- Sum								220.00
24-Nov-87	chem con	eei	shipley	waste corrosive liquid, nos	corrosive	un1760	d002	165.00
15-Dec-87	chem con	eei	shipley	waste corrosive liquid, nos	corrosive	un1760	d002	55.00
31-Jul-87	chem con	eei	shipley	waste corrosive liquid, nos	corrosive	un1760	d002	55.00
02-Sep-87	chem con	eei	shipley	waste corrosive liquid, nos	corrosive	un1760	d002	55.00
14-Jan-87	chem con	eei	shipley	waste corrosive liquid, nos	corrosive	un1760	d002	165.00
11-Mar-87	chem con	eei	shipley	waste corrosive liquid, nos	corrosive	un1760	d002	55.00
03-Apr-87	chem con	eei	shipley	waste corrosive liquid, nos	corrosive	un1760	d002	110.00
24-Feb-87	chem con	eei	shipley	waste corrosive liquid, nos	corrosive	un1760	d002	55.00
26-May-87	chem con	eei	shipley	waste corrosive liquid, nos	corrosive	un1760	d002	165.00
17-Feb-87	chem con	eei	shipley	waste corrosive liquid, nos	corrosive	un1760	d002	110.00
14-Jan-87	chem con	eei	shipley	waste corrosive liquid, nos	corrosive	un1760	d002	165.00
27-Oct-87	chem con	eei	shipley	waste corrosive liquid, nos	corrosive	un1760	d002	165.00
30-Jun-87	chem con	eei	shipley	waste corrosive liquid, nos	corrosive	un1760	d002	165.00
-- Count								13
-- Sum								1485.00
10-Jul-87	chem con	eei	sulfuric	waste sulfuric acid	corrosive	un1830	d002	3200.00
-- Count								1
-- Sum								3200.00
10-Aug-87	chem con	farmland	sulfuric	waste sulfuric acid	corrosive	un1830	d002	3200.00
01-May-87	chem con	farmland	sulfuric	waste sulfuric acid	corrosive	un1830	d002	0.00
10-Nov-87	chem con	farmland	sulfuric	waste sulfuric acid	corrosive	un1830	d002	3200.00
09-Oct-87	chem con	farmland	sulfuric	waste sulfuric acid	corrosive	un1830	d002	3200.00
17-Mar-87	chem con	farmland	sulfuric	waste sulfuric acid	corrosive	un1830	d002	3200.00
27-Aug-87	chem con	farmland	sulfuric	waste sulfuric acid	corrosive	un1830	d002	3300.00
16-Feb-87	chem con	farmland	sulfuric	waste sulfuric acid	corrosive	un1830	d002	3200.00
21-May-87	chem con	farmland	sulfuric	waste sulfuric acid	corrosive	un1830	d002	3200.00
13-Feb-87	chem con	farmland	sulfuric	waste sulfuric acid	corrosive	un1830	d002	3200.00
-- Count								9
-- Sum								25700.00

date	transporter	tsdf	common name	dot description	dot class	un/na	epa id	gallons
12-Aug-87	hwc	marine shale	flam solid	waste flammable solid, nos	flammable	un1993	d001	110.00
-- Count								1
-- Sum								110.00
19-Jun-87	hwc	marine shale	microstrip	waste flam., liq., corr., nos	flammable	un2924	d001,2	4510.00
15-Jun-87	chem con	marine shale	microstrip	waste flam., liq.,corr., nos	flammable	un2924	d001,2	4840.00
19-Jun-87	hwc	marine shale	microstrip	waste flam., liq., corr., nos	flammable	un2924	d001,2	660.00
08-Sep-87	hwc	marine shale	microstrip	waste flam., liq., corr., nos	flammable	un2924	d001,2	1980.00
31-Jul-87	chem con	marine shale	microstrip	waste flam., liq., corr., nos	flammable	un2924	d001,2	2365.00
-- Count								5
-- Sum								14355.00
12-Aug-87	hwc	marine shale	paint	waste flammable solid, nos	flammable	UN1325	d001	87.00
10-Nov-87	hwc	marine shale	paint	waste flammable liquid, nos	flammable	un1993	d001	55.00
-- Count								2
-- Sum								142.00
12-Aug-87	hwc	marine shale	resist bags	waste flammable liquid, nos	flammable	UN1325	d001	220.00
10-Nov-87	hwc	marine shale	resist bags	waste flammable solid, nos	flammable	un1325	d001	110.00
12-Aug-87	hwc	marine shale	resist bags	waste flammable liquid, nos	flammable	UN1325	d001	110.00
-- Count								3
-- Sum								440.00
13-Jan-87	hwc	solid tek	developer	waste corrosive liquid, nos	corrosive	na9189	na	715.00
-- Count								1
-- Sum								715.00
17-Feb-87	hwc	solid tek	nick strip	waste corrosive liquid, nos	corrosive	un1760	d002,8	55.00
-- Count								1
-- Sum								55.00
04-Mar-87	amer chem	suttles	cyanide	waste cyanide solution, nos	poison b	un1935	f007	55.00
-- Count								1
-- Sum								55.00

date	transporter	tsdf	common name	dot description	dot class	un/na	epa id	gallons
28-Apr-87	chem con	tricil	mixed solv	waste flammable liquid, nos	flammable	un1993	d001	6000.00
-- Count								1
-- Sum								6000.00
== Count								284
== Sum								306702.00

HARRIS SEMICONDUCTOR
CALENDAR YEAR 1987
VOC – MATERIAL BALANCE
ATTACHMENT 2
INDUSTRIAL WASTEWATER DISCHARGE

	CHLOROFORM		BROMODICHLORO-METHANE		DIBROMOCHLORO-METHANE		12 DICHLORO-BENZENE		14 DICHLORO-BENZENE		ETHYL BENZENE		TETRACHLROETHENE		TRICHLORO-ETHANE		XYLENE		METHANOL		ACETONE		IPA		VINYL CHLORIDE	
DATE	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.
13-Feb-87		41		7.8		0		0		0		0		0		0		0				1000				0
30-Apr-87	4.1	5.2	0	8.9	2.9	7.8	0	0	5	0	0	0	0	0	1.6	0	1.4	3.7	2600	3500	5400	1700	3500	2000	0	0
01-May-87	5.3	0	0	0	5.7	10	241	177	0	0	7	0	46	7.8	1.9	0	8.3	31	3300	8100	13300	24600	1800	1300	0	0
13-Aug-87	3	3	0	2	0	2	0	0	0	0	0	0	0	0	2	0	9	0	<1000	<1000	<250	840	<250	<250	0	0
20-Aug-87	11	2	8	2	11	2	0	0	0	0	0	0	0	0	0	0	0	0	<1000	<1000	<250	<250	<250	<250	0	0
27-Aug-87	5	4	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	<1000	<1000	270	450	<250	<250	0	0
03-Sep-87	3	2	0	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	<1000	<1000	2400	2000	1200	<250	0	0
10-Sep-87	4	3	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9800	<1000	5000	4400	4400	4400	0	0
17-Sep-87	5	4	3	6	0	9	0	0	0	0	0	0	0	0	0	0	0	0	<1000	22400	2200	2700	4100	2100	0	0
24-Sep-87																										
01-Oct-87	6	4	2	10	0	9	0	0	0	0	0	0	0	0	0	0	0	0	<1000	<1000	2100	<250	<250	<250	0	0
08-Oct-87	10.3	5.1	2.1	10.6	0	8.9	0	0	0	0	0	0	0	0	0	0	0	0	<1000	<1000	2400	1800	2700	<250	0	0
15-Oct-87	2.2	5	1.3	9.3	0	13.2	0	0	0	0	0	0	0	0	0	0	0	0	2500	<1000	2400	3300	3700	1300	0	0
22-Oct-87	6	2	3	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	5200	<1000	6100	3200	56800	1200	0	0
29-Oct-87																										
05-Nov-87	6	2	2	2	0	2	0	0	0	0	0	0	0	0	6	0	0	0	<1000	<1000	1200	1200	<250	<250	0	0
12-Nov-87	10	7	3	9	1	8	0	0	0	0	0	0	0	0	2	0	0	0	5200	1200	3300	3700	3000	2000	0	0
19-Nov-87	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<1000	<1000	<250	2500	2800	<250	0	0
26-Nov-87	16	7	9	13	4	11	0	0	0	0	0	0	0	0	0	3	0	0	<1000	2200	1600	2400	11300	5700	0	0
03-Dec-87	8	7	4	9	2	4	0	0	0	0	0	0	0	0	36	8	0	0	<1000	2000	<250	1490	5800	3100	0	0
10-Dec-87																										
17-Dec-87																										
24-Dec-87																										
31-Dec-87																										
07-Jan-88																										
14-Jan-88																										
21-Jan-88																										
all data reported in parts per billion (ppb)																										
AVERAGE	5.4	6.2	1.8	5.2	1.6	5.4	20.1	13.6	0.4	0.0	0.6	0.0	3.8	0.6	0.5	0.0	1.6	2.7	1866.7	2833.3	3465.8	3537.7	6516.7	1025.0	0.0	0.0

TABLE II

CALENDAR YEAR 1987 SOLVENT MATERIAL BALANCE

MONTH 1987	FLOW MGM	FLOWS MGD	COMPOUND	BENZENE	1,2 DICHLORO- BENZENE	1,4 DICHLORO- BENZENE	ETHYL BENZENE	PERCHLORO- ETHYLENE	TRICHLORO- ETHANE	XYLENE	METHANOL	ACETONE	IPA
			AVG. CONC. (ppb)	13.6	0.0	0.0	0.6	0.0	2.7	2833.0	3538.0	1025.0	
JAN	33.006	1.065		3.74	0.00	0.00	0.17	0.00	0.74	779.84	973.91	282.15	
FEB	32.522	1.162		3.69	0.00	0.00	0.16	0.00	0.73	768.40	959.62	278.01	
MAR	37.055	1.195		4.20	0.00	0.00	0.19	0.00	0.83	875.51	1093.38	316.76	
APR	35.123	1.171		3.98	0.00	0.00	0.18	0.00	0.79	829.86	1036.37	300.25	
MAY	38.45	1.241		4.36	0.00	0.00	0.19	0.00	0.87	908.47	1134.54	328.69	
JUN	37.353	1.245		4.24	0.00	0.00	0.19	0.00	0.84	882.55	1102.17	319.31	
JUL	39.967	1.289		4.53	0.00	0.00	0.20	0.00	0.90	944.31	1179.30	341.66	
AUG	38.721	1.249		4.39	0.00	0.00	0.19	0.00	0.87	914.87	1142.54	331.01	
SEP	36.326	1.211		4.12	0.00	0.00	0.18	0.00	0.82	858.28	1071.87	310.53	
OCT	35.784	1.154		4.06	0.00	0.00	0.18	0.00	0.81	845.48	1055.88	305.90	
NOV	33.817	1.127		3.84	0.00	0.00	0.17	0.00	0.76	799.00	997.84	289.08	
DEC	34.698	1.119		3.94	0.00	0.00	0.17	0.00	0.78	819.82	1023.83	296.62	
ANNUAL TOTALS	432.822	14.228		49.09	0.00	0.00	2.17	0.00	9.75	10226.38	12771.24	3699.98	

TOTAL VOC (LBS) 26758.60
TOTAL VOC (TONS) 13.38

TABLE III

HARRIS SEMICONDUCTOR
DEEPWELL INJECTION REPORT
DISCHARGE VOLUMES (GALLONS)

DATE	TOTAL WELL # 1	TOTAL WELL # 2	TOTAL # 1 & # 2	TOTAL WWTP	TOTAL GOV. SYS.
01-Jan-87	0	821700	845000	940500	0
02-Jan-87	0	828600	853300	901200	0
03-Jan-87	0	928600	950300	1004200	0
04-Jan-87	0	996500	1019800	1087800	0
05-Jan-87	0	1045700	1069700	1050000	0
06-Jan-87	0	1108000	1131600	1050000	0
07-Jan-87	0	1139600	1161700	1202300	0
08-Jan-87	0	1092900	1115800	1166500	0
09-Jan-87	0	1105800	1128500	1191100	0
10-Jan-87	0	1051600	1072800	1156300	0
11-Jan-87	0	978000	998200	1096100	0
12-Jan-87	0	926700	951500	981800	0
13-Jan-87	0	1061500	1085800	1119300	0
14-Jan-87	0	1120700	1139800	911300	0
15-Jan-87	0	1102200	1120200	1144600	0
16-Jan-87	0	1086400	1103900	1176400	0
17-Jan-87	0	1077800	1095500	1180700	0
18-Jan-87	0	1043000	1060800	1131100	0
19-Jan-87	0	1043900	1060300	1136800	0
20-Jan-87	0	1084800	1104200	1202100	0
21-Jan-87	0	1053400	1070900	1131800	0
22-Jan-87	0	1066800	1083200	1167300	0
23-Jan-87	0	1072400	1090300	1150400	0
24-Jan-87	0	1093300	1110300	1147600	0
25-Jan-87	0	492600	498800	544600	0
26-Jan-87	0	690300	694500	657700	0
27-Jan-87	0	864500	874600	907100	0
28-Jan-87	0	1015500	1035100	1000000	0
29-Jan-87	0	1164000	1184900	1000000	0
30-Jan-87	0	1143300	1162800	1205500	0
31-Jan-87	0	1206900	1227100	1264000	0
== Sum ==========					
	0	31507000	32101200	33006100	0
== Average ==========					
	0	1016354.84	1035522.58	1064712.9	0
== Min ==========					
	0	492600	498800	544600	0
== Max ==========					
	0	1206900	1227100	1264000	0

HARRIS SEMICONDUCTOR
DEEPWELL INJECTION REPORT
DISCHARGE VOLUMES (GALLONS)

DATE	TOTAL WELL # 1	TOTAL WELL # 2	TOTAL # 1 & # 2	TOTAL WWTP	TOTAL GOV. SYS.
01-Feb-87	0	1316700	1339000	1360700	0
02-Feb-87	0	934800	951100	985500	0
03-Feb-87	0	923000	936900	963500	0
04-Feb-87	0	1078000	1096400	1164700	0
05-Feb-87	0	1172200	1192200	1274400	0
06-Feb-87	0	1058900	1078600	1154600	0
07-Feb-87	0	957200	973800	1057900	0
08-Feb-87	0	888800	908500	985900	0
09-Feb-87	0	782000	793100	871000	0
10-Feb-87	0	1019200	1037200	1090900	0
11-Feb-87	0	1153600	1173200	1210700	0
12-Feb-87	0	1182400	1201200	1242400	0
13-Feb-87	0	1152500	1170900	1209900	0
14-Feb-87	0	1169900	1190200	1237900	0
15-Feb-87	0	1034300	1052900	1101000	0
16-Feb-87	0	956600	376600	1059100	0
17-Feb-87	0	1121100	507600	1234200	0
18-Feb-87	0	1161100	486000	1253600	0
19-Feb-87	0	1138300	469800	1222400	0
20-Feb-87	0	1147700	385900	1218700	0
21-Feb-87	0	1134500	563200	1242600	0
22-Feb-87	0	1082400	365100	1183000	0
23-Feb-87	0	1003000	363700	1125000	0
24-Feb-87	0	1016800	428600	1100000	0
25-Feb-87	0	1087100	450900	1182600	0
26-Feb-87	0	1169300	515100	1256200	0
27-Feb-87	0	1151900	520800	1268700	0
28-Feb-87	0	1127200	507400	1265100	0
== Sum ==========					
	0	30120500	22035900	32522200	0
== Average ==========					
	0	1075732.14	786996.429	1161507.14	0
== Min ==========					
	0	782000	363700	871000	0
== Max ==========					
	0	1316700	1339000	1360700	0

HARRIS SEMICONDUCTOR
DEEPWELL INJECTION REPORT
DISCHARGE VOLUMES (GALLONS)

DATE	TOTAL WELL # 1	TOTAL WELL # 2	TOTAL # 1 & # 2	TOTAL WWTP	TOTAL GOV. SYS.
01-Mar-87	0	977000	394100	1116100	0
02-Mar-87	0	1075800	449000	1174700	0
03-Mar-87	1085300	63300	25400	1230400	0
04-Mar-87	1116900	100	0	1215500	0
05-Mar-87	1078200	0	0	1229300	0
06-Mar-87	1156500	0	0	1235400	0
07-Mar-87	1159000	0	0	1253300	0
08-Mar-87	1052000	0	0	1187500	0
09-Mar-87	1016500	0	0	1146700	0
10-Mar-87	1124700	0	0	1268100	0
11-Mar-87	1108200	0	0	1220600	0
12-Mar-87	1121600	0	0	1220000	0
13-Mar-87	1168600	0	0	1262800	0
14-Mar-87	1121100	0	0	1179900	0
15-Mar-87	1008000	0	0	1118000	0
16-Mar-87	973100	0	0	1075500	0
17-Mar-87	1093800	0	0	1217900	0
18-Mar-87	1111000	0	0	1228100	0
19-Mar-87	1064500	0	0	1184700	0
20-Mar-87	1070300	0	0	1251400	0
21-Mar-87	1107500	0	0	1241500	0
22-Mar-87	934800	0	0	1051900	0
23-Mar-87	976000	0	0	1112800	0
24-Mar-87	1125400	0	0	1276800	0
25-Mar-87	1043200	0	0	1237000	0
26-Mar-87	1006400	0	0	1209300	0
27-Mar-87	1098500	0	0	1296400	0
28-Mar-87	984100	0	0	1160000	0
29-Mar-87	878300	0	0	1092000	0
30-Mar-87	1010100	0	0	1178300	0
31-Mar-87	1041100	0	0	1182500	0
== Sum ==========					
	30834700	2116200	868500	37054400	0
== Average ==========					
	994667.742	68264.5161	28016.129	1195303.23	0
== Min ==========					
	0	0	0	1051900	0
== Max ==========					
	1168600	1075800	449000	1296400	0

HARRIS SEMICONDUCTOR
DEEPWELL INJECTION REPORT
DISCHARGE VOLUMES (GALLONS)

DATE	TOTAL WELL # 1	TOTAL WELL # 2	TOTAL # 1 & # 2	TOTAL WWTP	TOTAL GOV. SYS.
01-Apr-87	1080200	0	0	1194800	0
02-Apr-87	1124900	0	0	1229100	0
03-Apr-87	1144600	0	0	1288700	0
04-Apr-87	987600	0	0	1118400	0
05-Apr-87	755600	0	0	926500	0
06-Apr-87	936600	0	0	1029400	0
07-Apr-87	1115400	0	0	1227100	0
08-Apr-87	1171800	0	0	1266600	0
09-Apr-87	1066200	0	0	1208100	0
10-Apr-87	1106000	0	0	1273300	0
11-Apr-87	1043700	0	0	1204800	0
12-Apr-87	792200	0	0	967300	0
13-Apr-87	709100	0	0	935700	0
14-Apr-87	803400	0	0	1021200	0
15-Apr-87	1059400	0	0	1225500	0
16-Apr-87	1133400	0	0	1285900	0
17-Apr-87	1118600	0	0	1245300	0
18-Apr-87	1436800	0	0	1221400	0
19-Apr-87	682700	0	0	1150500	0
20-Apr-87	1005300	0	0	1535500	0
21-Apr-87	1113400	0	0	869100	0
22-Apr-87	1092700	0	0	1251000	0
23-Apr-87	1035400	0	0	1213100	0
24-Apr-87	680900	0	0	810800	0
25-Apr-87	1099100	0	0	1318100	0
26-Apr-87	882300	0	0	1126600	0
27-Apr-87	993100	0	0	1192700	0
28-Apr-87	1045600	0	686000	1229600	0
29-Apr-87	1115800	0	1139300	1306300	0
30-Apr-87	1056000	0	1079800	1250000	0
== Sum	30387800	0	2905100	35122400	0
== Average	1012926.67	0	96836.6667	1170746.67	0
== Min	680900	0	0	810800	0
== Max	1436800	0	1139300	1535500	0

HARRIS SEMICONDUCTOR
DEEPWELL INJECTION REPORT
DISCHARGE VOLUMES (GALLONS)

DATE	TOTAL WELL # 1	TOTAL WELL # 2	TOTAL # 1 & # 2	TOTAL WWTP	TOTAL GOV. SYS.
01-May-87	1044800	0	1068000	1250000	0
02-May-87	1095800	0	1119500	1250000	15600
03-May-87	966200	0	989800	1200400	0
04-May-87	983100	0	1007800	1229600	5200
05-May-87	1113600	0	1136000	1332200	18500
06-May-87	1157000	0	1150800	1373400	9800
07-May-87	1024300	0	1079000	1269700	12800
08-May-87	1098500	0	1121700	1313700	12100
09-May-87	915700	0	935200	1120200	10900
10-May-87	1038100	0	1062700	1286000	2700
11-May-87	1049800	0	1071800	1277200	1100
12-May-87	1111300	0	1132900	1324500	14000
13-May-87	927300	280200	1224900	1335400	12500
14-May-87	936500	108600	1060600	1208200	6600
15-May-87	1086800	0	1110300	1288400	21700
16-May-87	1006700	0	1031700	1226900	9600
17-May-87	1084900	0	1110900	1323500	2600
18-May-87	973500	0	996000	1229700	3300
19-May-87	1098500	0	1122600	1340300	14800
20-May-87	1154600	0	1179000	1332700	21800
21-May-87	1090500	0	1114800	1280000	12400
22-May-87	1095200	0	1119500	1262000	10600
23-May-87	1059600	0	1083100	1208100	15800
24-May-87	976100	0	1000700	1150700	0
25-May-87	727700	0	746400	926000	0
26-May-87	939000	0	961300	1079900	2500
27-May-87	1068000	0	1090800	1250800	6500
28-May-87	1063500	0	1085600	1221600	13400
29-May-87	1086500	0	1106500	1255900	12800
30-May-87	989400	0	1016400	1162900	9000
31-May-87	954600	0	978200	1140200	0
== Sum	31917100	388800	33014500	38450100	278600
== Average	1029583.87	12541.9355	1064983.87	1240325.81	8987.09677
== Min	727700	0	746400	926000	0
== Max	1157000	280200	1224900	1373400	21800

HARRIS SEMICONDUCTOR
DEEPWELL INJECTION REPORT
DISCHARGE VOLUMES (GALLONS)

DATE	TOTAL WELL # 1	TOTAL WELL # 2	TOTAL # 1 & # 2	TOTAL WWTP	TOTAL GOV. SYS.
01-Jun-87	955400	0	978300	1154900	5000
02-Jun-87	1300	1167100	1187500	1330800	11500
03-Jun-87	0	904300	919500	1075400	16000
04-Jun-87	0	1019300	1036600	1179100	24700
05-Jun-87	0	1164600	1183500	1287600	14100
06-Jun-87	0	1042300	1058600	1189300	19400
07-Jun-87	0	898800	915600	1043400	0
08-Jun-87	0	901100	916300	976700	12400
09-Jun-87	0	1152800	1172200	1195800	29200
10-Jun-87	0	1214900	1234500	1259400	20000
11-Jun-87	0	1236700	1256700	1316100	16100
12-Jun-87	0	1264100	1283900	1342400	19000
13-Jun-87	0	1240300	1260000	1308700	19700
14-Jun-87	0	1026200	1042200	1158500	0
15-Jun-87	0	1051000	1068100	1170100	8200
16-Jun-87	0	1177100	1196400	1309200	13200
17-Jun-87	0	1172700	1191800	1288000	12400
18-Jun-87	0	1223400	1243000	1379100	8900
19-Jun-87	0	1265500	1284200	1382700	19500
20-Jun-87	0	1162200	1180300	1300700	13600
21-Jun-87	0	1082500	1100200	1234700	9900
22-Jun-87	0	1090900	1108400	1227900	10000
23-Jun-87	0	1198900	1217400	1326100	23000
24-Jun-87	0	1196300	1214700	1295400	17300
25-Jun-87	0	1199300	1218900	1303600	12200
26-Jun-87	0	1209000	1227600	1333600	11700
27-Jun-87	0	1177600	1195800	1269600	13300
28-Jun-87	0	1072900	1089400	1173700	5800
29-Jun-87	0	1132300	1152400	1245800	4200
30-Jun-87	0	1186300	1203600	1294500	10500
== Sum ==========					
	956700	32830400	34337600	37352800	400800
== Average ==========					
	31890	1094346.67	1144586.67	1245093.33	13360
== Min ==========					
	0	0	915600	976700	0
== Max ==========					
	955400	1265500	1284200	1382700	29200

HARRIS SEMICONDUCTOR
DEEPWELL INJECTION REPORT
DISCHARGE VOLUMES (GALLONS)

DATE	TOTAL WELL # 1	TOTAL WELL # 2	TOTAL # 1 & # 2	TOTAL WWTP	TOTAL GOV. SYS.
01-Jul-87	1700	1203000	1222700	1314400	11300
02-Jul-87	0	1217200	1237400	1333700	7800
03-Jul-87	0	1124700	1139200	1208300	11400
04-Jul-87	0	995900	1007500	1120000	0
05-Jul-87	0	978100	984200	1097900	0
06-Jul-87	0	1048200	1059100	551300	2400
07-Jul-87	0	1190700	1209200	1954900	6000
08-Jul-87	0	1308100	1327400	1407900	9300
09-Jul-87	0	1177700	1197900	1308800	9400
10-Jul-87	0	1236200	1255000	1340900	14700
11-Jul-87	0	1220700	1240200	1339300	11300
12-Jul-87	0	1064800	1082700	1220500	0
13-Jul-87	0	1156000	1176300	1282800	1500
14-Jul-87	0	1325500	1349700	1411300	6700
15-Jul-87	0	1327100	1348600	1379200	10700
16-Jul-87	0	1343800	1366700	1398400	8900
17-Jul-87	0	1302400	1324700	1367000	10700
18-Jul-87	0	1210000	1232000	1347000	10500
19-Jul-87	0	29919000	1331300	1425900	0
20-Jul-87	0	0	936700	972300	3700
21-Jul-87	0	0	1185000	1304500	7300
22-Jul-87	0	0	1169300	1294600	13700
23-Jul-87	0	0	1243900	1376900	12400
24-Jul-87	0	0	1191900	1363200	10000
25-Jul-87	0	0	1419100	1537100	16000
26-Jul-87	0	0	1031300	1197200	0
27-Jul-87	0	0	780800	923700	3500
28-Jul-87	0	0	1122800	1275700	4400
29-Jul-87	0	0	1118800	1254900	19200
30-Jul-87	0	0	1192500	1317500	12500
31-Jul-87	0	0	1213800	1339300	8600
== Sum ==========					
	1700	51349100	36697700	39966400	243900
== Average ==========					
	54.8387097	1656422.58	1183796.77	1289238.71	7867.74194
== Min ==========					
	0	0	780800	551300	0
== Max ==========					
	1700	29919000	1419100	1954900	19200

HARRIS SEMICONDUCTOR
DEEPWELL INJECTION REPORT
DISCHARGE VOLUMES (GALLONS)

DATE	TOTAL WELL # 1	TOTAL WELL # 2	TOTAL # 1 & # 2	TOTAL WWTP	TOTAL GOV. SYS.
01-Aug-87	0	0	1194600	1301100	10400
02-Aug-87	0	0	1040700	1189600	0
03-Aug-87	0	0	1106500	1218300	10500
04-Aug-87	0	0	1239600	1373900	6800
05-Aug-87	0	0	1186600	1297900	10600
06-Aug-87	0	0	1175100	1305900	9200
07-Aug-87	0	0	1242200	1386200	7300
08-Aug-87	0	0	757200	888100	14800
09-Aug-87	0	0	773300	941800	0
10-Aug-87	0	0	1038000	1184800	900
11-Aug-87	0	0	1252200	1365700	3000
12-Aug-87	0	0	1247600	1330500	5200
13-Aug-87	0	0	1214000	1302600	9700
14-Aug-87	0	0	442600	1289700	0
15-Aug-87	0	0	0	1259200	15700
16-Aug-87	0	0	0	1180700	0
17-Aug-87	0	0	0	1199600	0
18-Aug-87	0	0	0	1291000	4300
19-Aug-87	0	0	0	1576500	12100
20-Aug-87	0	0	0	1170000	2000
21-Aug-87	0	0	0	1294000	9000
22-Aug-87	0	0	0	1180900	10800
23-Aug-87	3700	0	0	1006300	0
24-Aug-87	0	0	0	1104300	7100
25-Aug-87	1082200	0	0	1320400	4500
26-Aug-87	1152300	0	1103000	1349300	1800
27-Aug-87	1171600	0	1175700	1318300	8700
28-Aug-87	1030500	0	1195000	1374900	8500
29-Aug-87	1030500	0	1052400	1229100	3700
30-Aug-87	1112800	0	1136900	1337200	0
31-Aug-87	940200	0	964400	1152400	5200
== Sum ==========					
	7523800	0	21537600	38720200	181800
== Average ==========					
	242703.226	0	694761.29	1249038.71	5864.51613
== Min ==========					
	0	0	0	888100	0
== Max ==========					
	1171600	0	1252200	1576500	15700

HARRIS SEMICONDUCTOR
DEEPWELL INJECTION REPORT
DISCHARGE VOLUMES (GALLONS)

DATE	TOTAL WELL # 1	TOTAL WELL # 2	TOTAL # 1 & # 2	TOTAL WWTP	TOTAL GOV. SYS.
01-Sep-87	1436000	0	1461900	1671800	5600
02-Sep-87	904000	0	922800	1039800	2500
03-Sep-87	1171700	0	1192900	1305300	7300
04-Sep-87	744500	0	758100	1432600	13800
05-Sep-87	600	0	300	1137700	2800
06-Sep-87	0	0	0	1054800	1400
07-Sep-87	0	0	0	724700	10000
08-Sep-87	0	0	0	843200	9600
09-Sep-87	0	0	0	1293200	4700
10-Sep-87	0	0	0	1229100	8100
11-Sep-87	0	0	0	1242400	9100
12-Sep-87	0	0	0	1272800	2500
13-Sep-87	0	0	0	1249300	1600
14-Sep-87	0	0	0	1185200	6500
15-Sep-87	0	0	0	1350600	4300
16-Sep-87	0	0	0	1317000	5200
17-Sep-87	0	0	0	1354800	5300
18-Sep-87	0	0	0	1373400	7300
19-Sep-87	0	0	0	1290000	4800
20-Sep-87	0	0	0	1136500	0
21-Sep-87	0	0	0	726500	0
22-Sep-87	0	0	0	1781100	12000
23-Sep-87	0	0	0	1304000	2300
24-Sep-87	0	0	0	1352000	4500
25-Sep-87	0	0	0	1371700	5100
26-Sep-87	0	0	0	1162500	5300
27-Sep-87	0	0	0	703600	0
28-Sep-87	0	0	0	961700	4000
29-Sep-87	0	0	0	1166900	2800
30-Sep-87	0	0	0	1292000	7900
== Sum ==========					
	4256800	0	4336000	36326200	156300
== Average ==========					
	141893.333	0	144533.333	1210873.33	5210
== Min ==========					
	0	0	0	703600	0
== Max ==========					
	1436000	0	1461900	1781100	13800

HARRIS SEMICONDUCTOR
DEEPWELL INJECTION REPORT
DISCHARGE VOLUMES (GALLONS)

DATE	TOTAL WELL # 1	TOTAL WELL # 2	TOTAL # 1 & # 2	TOTAL WWTP	TOTAL GOV. SYS.
01-Oct-87	0	0	0	1202800	6200
02-Oct-87	0	0	0	1063600	6800
03-Oct-87	0	0	0	1308200	14700
04-Oct-87	0	0	0	954200	0
05-Oct-87	0	0	0	1149100	1600
06-Oct-87	0	0	0	1221600	7800
07-Oct-87	0	0	0	1196500	0
08-Oct-87	0	0	0	1219700	8700
09-Oct-87	0	0	0	1219700	5500
10-Oct-87	0	0	0	1215800	6200
11-Oct-87	0	0	0	1183500	400
12-Oct-87	0	0	0	1352800	7500
13-Oct-87	0	0	0	948100	3900
14-Oct-87	0	0	0	1222400	4400
15-Oct-87	0	0	0	1167000	6200
16-Oct-87	0	0	0	1266800	4200
17-Oct-87	0	0	0	1265500	10900
18-Oct-87	0	0	0	793500	200
19-Oct-87	0	0	0	1105900	0
20-Oct-87	0	0	0	1176500	12400
21-Oct-87	0	0	0	1197800	3300
22-Oct-87	0	0	0	1183000	9100
23-Oct-87	0	0	0	1175100	4800
24-Oct-87	0	0	0	1104100	10000
25-Oct-87	0	0	0	1093900	0
26-Oct-87	0	0	0	1067100	0
27-Oct-87	0	0	0	1095600	4700
28-Oct-87	0	0	0	1160300	5600
29-Oct-87	0	0	0	1150000	10700
30-Oct-87	0	0	0	1173500	8400
31-Oct-87	0	0	0	1149900	3900
== Sum ==========	0	0	0	35783500	168100
== Average ==========	0	0	0	1154306.45	5422.58065
== Min ==========	0	0	0	793500	0
== Max ==========	0	0	0	1352800	14700

HARRIS SEMICONDUCTOR
DEEPWELL INJECTION REPORT
DISCHARGE VOLUMES (GALLONS)

DATE	TOTAL WELL # 1	TOTAL WELL # 2	TOTAL # 1 & # 2	TOTAL WWTP	TOTAL GOV. SYS.
01-Nov-87	0	0	0	1114300	2500
02-Nov-87	0	0	0	1125900	3000
03-Nov-87	1181700	0	1205800	1312900	6600
04-Nov-87	1155400	0	1175900	1252200	10000
05-Nov-87	1097300	0	1121000	1305400	7800
06-Nov-87	1083400	0	1106100	1271800	6600
07-Nov-87	1087200	0	1110900	1189800	7800
08-Nov-87	899100	0	919900	1014800	0
09-Nov-87	988700	0	1012500	1118900	200
10-Nov-87	1051600	0	1074800	1185900	4700
11-Nov-87	1194700	0	1217500	1331000	3800
12-Nov-87	1162400	0	1185900	1244800	4300
13-Nov-87	1121400	0	1143700	1190300	6100
14-Nov-87	1102600	0	1126100	1174700	7300
15-Nov-87	988100	0	1010200	1102300	0
16-Nov-87	876000	0	896300	986300	6900
17-Nov-87	1196600	0	1219400	1326300	5800
18-Nov-87	1231100	0	1252900	1007500	5000
19-Nov-87	994200	0	1014600	1482400	8100
20-Nov-87	1170400	0	1193100	1249300	12900
21-Nov-87	1059500	0	1082100	1151600	9500
22-Nov-87	1074700	0	1098300	1158500	0
23-Nov-87	965200	0	987100	1078200	4000
24-Nov-87	860000	0	877400	1005900	8500
25-Nov-87	1057900	0	1078000	1170000	6300
26-Nov-87	3141400	0	3204200	3218100	6700
27-Nov-87	0	0	0	0	0
28-Nov-87	0	0	0	0	0
29-Nov-87	0	0	0	0	0
30-Nov-87	930800	0	949800	1047400	9700
== Sum ==========					
	28671400	0	29263500	33816500	154100
== Average ==========					
	955713.333	0	975450	1127216.67	5136.66667
== Min ==========					
	0	0	0	0	0
== Max ==========					
	3141400	0	3204200	3218100	12900

HARRIS SEMICONDUCTOR
DEEPWELL INJECTION REPORT
DISCHARGE VOLUMES (GALLONS)

DATE	TOTAL WELL # 1	TOTAL WELL # 2	TOTAL # 1 & # 2	TOTAL WWTP	TOTAL GOV. SYS.
01-Dec-87	1193000	0	1217200	1285500	7699
02-Dec-87	1102900	0	1124700	1191700	4101
03-Dec-87	1125100	0	1148300	1213799	7700
04-Dec-87	1232800	0	1282000	1336100	8200
05-Dec-87	1127000	0	1149800	1224801	4300
06-Dec-87	1110900	0	1135500	1123500	0
07-Dec-87	1024500	0	1049100	1072800	2400
08-Dec-87	1102600	0	1126600	1228800	4400
09-Dec-87	1159900	0	1184300	1285100	4300
10-Dec-87	1104500	0	1129300	1249000	7200
11-Dec-87	1140600	0	1164800	1297100	4900
12-Dec-87	1105700	0	1128300	1200800	3500
13-Dec-87	1001100	0	1024500	1099400	0
14-Dec-87	1070800	0	1094700	1166000	4100
15-Dec-87	1093300	0	1126400	1266400	5800
16-Dec-87	1013100	0	1174900	1314000	2300
17-Dec-87	1083700	0	1357000	1233800	6600
18-Dec-87	1046600	0	1019600	1198000	2500
19-Dec-87	1077200	0	1051300	1269900	2700
20-Dec-87	1042600	0	1016200	1267000	0
21-Dec-87	988600	0	960200	1156900	7700
22-Dec-87	1111100	0	1088600	1309600	7800
23-Dec-87	1125800	0	1100000	1340400	6000
24-Dec-87	677300	0	659200	802600	5300
25-Dec-87	0	0	0	0	0
26-Dec-87	0	0	0	0	0
27-Dec-87	2276600	0	2284800	2917600	0
28-Dec-87	615300	0	587600	750700	0
29-Dec-87	521700	0	500800	663400	0
30-Dec-87	595500	0	565400	732700	0
31-Dec-87	395300	0	375700	500400	0
== Sum ==========					
	30265100	0	30826800	34697800	109500
== Average ==========					
	976293.548	0	994412.903	1119283.87	3532.25806
== Min ==========					
	0	0	0	0	0
== Max ==========					
	2276600	0	2284800	2917600	8200

HARRIS SEMICONDUCTOR
CALENDAR YEAR 1987
VOC – MATERIAL BALANCE
ATTACHMENT 3
AIR EMISSIONS

SOLVENT SCRUBBERS--HARRIS SEMICONDUCTOR

BLDG	SCRUBBER#	ACTUAL PRODUCTION SCHEDULE (hrs/yr)	TOTAL YEARLY VOC EMISSIONS (ton/yr)
04	F04S01	8760	0.26
04	F04S02	8760	min
04	F04S03	8760	1.93
04	F04S08	8760	8.77
51	F51S02	7488	10.04
51	F51S03	7488	3.28
51	F51S04	7488	1.51
51	F51S05	7488	14.51
54	F54S01	4160	8.70
54	F54S02	4160	8.70
54	F54S03	8760	32.59
54	F54S04	8760	32.59
57	F57S01	4160	0.95
58	F58S01	7488	2.49
58	F58S02	520	0.10
59	F59S03	5980	0.37
60	F60S01	4160	min
61	F61S01	1040	0.07
62	F62S02	2112	0.32
63	F63S02	7488	1.78
63	F63S03	4160	2.35
			131.29

* Above emission data includes offshift emissions.
* When multiple testing was performed, values are indicative of highest VOC concentrations observed.

HARRIS SEMICONDUCTOR
CALENDAR YEAR 1987
VOC – MATERIAL BALANCE
ATTACHMENT 4
CHEMICAL USAGE

TABLE IV

CODE	CHEMICAL	TRADE NAME	NO COMPONENT	COMPONENT	UNITS
S	1,1,1 TRIMETHYL-N-TRIMETHYL ETHER	HMDS	1234.320	0.000	P
S	1,1,1 TRIMETHYL-N-TRIMETHYL ETHER	HMDS 10%	37029.600		P
S	1,1,1 TRIMETHYL-N-TRIMETHYL ETHER	HMDS BTL	0.057		P
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, WAYCOAT HPR 205		686.949	P
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, SHIPLEY MICROPOSIT SAL 601-		2.819	P
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, SHIPLEY THINNER A		1564.717	P
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, WAYCOAT HPR 204		4538.028	P
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, SHIPLEY S1400-27		4140.777	P
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, HOECHST AZ 4903		5.594	P
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, SHIPLEY S1400-17		2.992	P
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, SHIPLEY S1400-21		22.898	P
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, SHIPLEY ECX 1000		1.409	P
S	2-METHYOXYETHANOL	PHOTORESIST, KTI NEG 747		95.621	P
S	2-PENTANONE	2-PENTANONE	303.993		P
S	ALIPHATIC PETROLEUM DISTILLATES	DEVELOPER, KTI PROJECTION		1749.398	P
S	ALIPHATIC SOLVENTS	FLUX, KENCO 934-SA		2.752	P
S	BUTYL ACETATE	BUTYL ACETATE	52181.712		P
S	BUTYL ACETATE	PHOTORESIST, WAYCOAT HPR 204		383.987	P
S	BUTYL ACETATE	PHOTORESIST, WAYCOAT HPR 205		58.126	P
S	CELLOSOLVE ACETATE	CELLOSOLVE ACETATE	6593.187		P
S	CELLOSOLVE ACETATE	HMDS 10%		32326.841	P
S	CELLOSOLVE ACETATE	PHOTORESIST, SHIPLEY 1400-27		2166.772	P
S	CELLOSOLVE ACETATE	PHOTORESIST, ULTRAMAC PR 914		8.090	P
S	CELLOSOLVE ACETATE	PHOTORESIST, SHIPLEY AZ 1370		271.817	P
S	CERIC AMMONIUM NITRATE	CERIC AMMONIUM NITRATE	273.000		P
S	CHF3	CHF3	70.000		P
S	CHLORDIFLUOROMETHANE	FREON 22	4875.000		P
S	CHLORINATED HYDROCARBONS	STRIPPER, HUNT MICROSTRIP		45711.540	P
S	CHLOROTRIFLUOROMETHANE	FREON 13		1.000	EA
S	DICHLORODIFLUOROMETHANE	MS 240		24.000	P
S	DICHLORODIFLUOROMETHANE	MS 230 CONTACT RE-NU		0.600	P
S	DICHLORODIFLUOROMETHANE	MS 136		17.850	P
S	DICHLORODIFLUOROMETHANE	MS 190HD		7.200	P
S	DICHLORODIFLUOROMETHANE	MS 180		28.800	P
S	DICHLORODIFLUOROMETHANE	MS 220 AERO-DUSTER		12.000	P
S	DICHLORODIFLUOROMETHANE	MS 190		7.200	P
S	EDTA	HACH TOTAL CHLORINE REAGENT		0.100	EA
S	EDTA	HACH FREE CHLORINE REAGENT		0.050	PK
S	ETHANOL	MARKEM INK FORM C		18.250	P
S	ETHANOL	THINNER, KESTER 4163		629.080	P
S	ETHYL ACETATE	MARKEM INK FORM F		18.250	P
S	ETHYL ALCOHOL	FLUX, KENCO 934-SA		2.174	P
S	ETHYL ALCOHOL	ETHYL ALCOHOL	683.561		P
S	ETHYL ALCOHOL	BLACO-TRON TMS PLUS		151.200	P
S	FC 40	FC 40	1800.000		P
S	FC 70	FC 70	240.000		P
S	FC 71	FC 71	15.000		P
S	FC 77	FC 77	462.000		P
S	FC 84	FC 84	3220.000		P
S	FREON 115	FREON 115	40.000		P
S	HMDS	HMDS 10%		2851.279	P
S	HMDS	HMDS	950.426		P
S	IPA	THINNER, KESTER 4163		743.458	P
S	IPA	FLUX, ALPHA 100		3.294	P
S	IPA	FLUX, KESTER 2163		378.844	P
S	ISOPROPYL ALCOHOL	FLUX, KESTER 135		38.873	P
S	ISOPROPYL ALCOHOL	ISOPROPYL ALCOHOL	63329.623		P
S	ISOPROPYL ALCOHOL	ETHYL ALCOHOL		34.178	P
S	ISOPROPYL ALCOHOL	FLUX, ALPHA 611	79.063		P

CODE	CHEMICAL	TRADE NAME	NO COMPONENT	COMPONENT	UNITS
S	N-BUTYL	PHOTORESIST, SHIPLEY 1400-27		190.232	P
S	N-BUTYL	PHOTORESIST, SHIPLEY AZ 1370		17.614	P
S	N-BUTYL ACETATE	PHOTORESIST, SHIPLEY S1400-21		2.055	P
S	N-BUTYL ACETATE	PHOTORESIST, SHIPLEY ECX 1000		0.128	P
S	N-BUTYL ACETATE	PHOTORESIST, SHIPLEY S1400-17		0.257	P
S	N-BUTYL ACETATE	PHOTORESIST, SHIPLEY MICROPOSIT SAL 601-		0.257	P
S	N-BUTYL ACETATE	PHOTORESIST, SHIPLEY S1400-27		339.071	P
S	N-BUTYL ACETATE	PHOTORESIST, HOECHST AZ 4903		0.550	P
S	N-BUTYL ACTATE	PHOTORESIST, SHIPLEY THINNER A		145.316	P
S	N-METHYL-2-PYRROLIDONE	STRIPPER, SHIPLEY 1165		1299.372	P
S	PGMEA	THINNER, HOECHST AZ 1500	808.980		P
S	PGMEA	PHOTORESIST, HOECHST AZ 5206		26.211	P
S	PGMEA	PHOTORESIST, HOECHST AZ 5214		200.789	P
S	SDA 30 ALCOHOL	FREON TE		4.030	P
S	TELOMER OF TETRAFLUOROETHANE	MS 136		0.765	P
S	TETRAFLUOROMETHANE	FREON 14	140.000		P
S	TETRAFLUOROMETHANE	DE 100		637.560	CF
S	TETRAFLUOROMETHANE	FREON 14	840.000		P
S	TETRAFLUOROMETHANE	FREON 14	630.000		P
S	TRIFLOUROMETHANE	TRIFLOUROMETHANE			
== Sum			175799.523	101573.217	

CHEMICALS USED PER P/R SYSTEM DURING 1987

code	CHEMICAL NAME	TRADE NAME	MSS PART NO	RECEIVED AMOUNT		ACTUAL LBS NO COMPONENT	COMPONENT		SG FOR CHEMICAL		FROM %	TO %
S	1,1,1 TRIMETHYL-N-TRIMETHYL ETHER	HMDS	0	148	GL	1234.320	0.000	P	1		0	0
S	1,1,1 TRIMETHYL-N-TRIMETHYL ETHER	HMDS 10%		4440	GL	37029.600		P	1		0	0
S	1,1,1 TRIMETHYL-N-TRIMETHYL ETHER	HMDS BTL		21.6	KG	0.057		P	0		0	0
	2,2 DIBROMO 3 NITRILOPROPIO	NALCO 2510		660	GL	5504.400		P	1		0	0
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, SHIPLEY THINNER A		220	GL		1564.717	P	1.04	SG	82	0
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, SHIPLEY S1400-27		770	GL		4140.777	P	1.04	SG	62	0
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, SHIPLEY S1400-17		0.5	GL		2.992	P	1.04	SG	69	0
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, WAYCOAT HPR 204		872	GL		4538.028	P	1.04	SG	60	0
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, SHIPLEY MICROPOSIT SAL 601-ER7		0.5	GL		2.819	P	1.04	SG	65	0
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, HOECHST AZ 4903		1.5	GL		5.594	P	1.04	SG	43	0
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, WAYCOAT HPR 205		132	GL		686.349	P	1.04	SG	60	0
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, SHIPLEY S1400-21		4	GL		22.898	P	1.04	SG	66	0
S	2-ETHOXYETHYL ACETATE	PHOTORESIST, SHIPLEY ECI 1000		0.25	GL		1.409	P	1.04	SG	65	0
S	2-METHYOXYETHANOL	PHOTORESIST, KTI NEG 747		197	GL		95.621	P	0.97	SG	6	0
S	2-PENTANONE	2-PENTANONE	210549	45	EA	303.993		P	0.81			
	ABRASIVES	Z-100		300	P		228.000	P			76	0
	ACETIC ACID	ACETIC ACID	210062-01	8010	P	8010.000		P	1.05			
S	ALIPHATIC PETROLEUM DISTILLATES	DEVELOPER, KTI PROJECTION		276	GL		1749.398	P	0.76	SG	100	0
S	ALIPHATIC SOLVENTS	FLUX, KENCO 934-SA		1	GL		2.752	P	1		33	0
	ALKALINE HYPOCHLORITE	Z-100		300	P		12.000	P			4	0
	ALKYL ARYL SULFONIC ACID	STRIPPER, HUNT MICROSTRIP		9135	GL		17522.757	P	1		23	0
	AMDE	NALCO 2510		660	GL		1651.320	P	1		20	40
	AMMONIUM FLUORIDE	AMMONIUM FLUORIDE	210062-01	41796	P	41796.000		P	1.32			
	AMMONIUM FLUORIDE	ETCH, BUFFERED OXIDE ETCH 9:1		1464	GL		14505.195	P	1.32		90	0
	AMMONIUM HYDROXIDE	ETCH, EDTA		68	KG	0.057		P	0.89		0	0
	AMMONIUM HYDROXIDE	AMMONIUM HYDROXIDE	210062-04	1965	L	375.303		P	0.89			
	AMMONIUM PERSULFATE	STRIPPER, BURMAR SA 80		2080	P	2080.000		P	1.98		0	0
	ANIT STATIC SPRAY AMERICAN SCI	ANIT STATIC SPRAY AMERICAN SCI	210577	22	GL	183.480		P	1			
	ARCOSOLV PM	ARCOSOLV PM	210062-12	8	GL	64.718		P	0.97			
	ARGON	ARGON	210269-00	35	CY							
	ARGON	ARGON	210269	8614	CF							
	BORON TRIBROMIDE	BORON TRIBROMIDE	210023	38.4	KG	84.657		P	2.65			
	BORON TRICHLORIDE	BORON TRICHLORIDE	210637	3	CY				1.35			
	BORON TRICHLORIDE	BORON TRICHLORIDE	210637-00	3	CY	42.000		P	1.35			
	BORON TRIFLUORIDE	BORON TRIFLUORIDE	210216	3.12	KG	6.878		P	3.07			
	BORON TRIFLUORIDE	BORON TRIFLUORIDE	210216-00	41	CY	7.231		P	3.07			
S	BUTYL ACETATE	BUTYL ACETATE	210062-03	7110	GL	52181.712		P	0.88			
S	BUTYL ACETATE	PHOTORESIST, WAYCOAT HPR 205		132	GL		58.126	P	0.88		6	0
S	BUTYL ACETATE	PHOTORESIST, WAYCOAT HPR 204		872	GL		383.987	P	0.88		6	0
	CALCIUM CARBONATE	COOL AMP		4	P		1.400	P	0		35	45
	CARBON DIOXIDE	CARBON DIOXIDE	215574-00	294	CY	19110.000		P	1.56			
S	CELLOSOLVE ACETATE	PHOTORESIST, SHIPLEY AZ 1370		48	GL		271.817	P	0.97		70	0
S	CELLOSOLVE ACETATE	PHOTORESIST, SHIPLEY 1400-27		432	GL		2156.772	P	0.97		62	0
S	CELLOSOLVE ACETATE	HMDS 10%		4440	GL		32326.841	P	0.97		90	0
S	CELLOSOLVE ACETATE	PHOTORESIST, ULTRAMAC PR 914		2	GL		8.090	P	0.97		50	0
S	CELLOSOLVE ACETATE	CELLOSOLVE ACETATE	210062-05	815	GL	6593.187		P	0.97			
S	CERIC AMMONIUM NITRATE	CERIC AMMONIUM NITRATE	210062-03	273	P	273.000		P				
	CERIC SULFATE	CERIC SULFATE	210062-02	63	KG	138.870		P				
S	CHF3	CHF3	210575-00	70	P	70.000		P				
S	CHLORDIFLUOROMETHANE	FREON 22	215283-00	4875	P	4875.000		P				
S	CHLORINATED HYDROCARBONS	STRIPPER, HUNT MICROSTRIP		9135	GL		45711.540	P	1		60	0
S	CHLOROTRIFLUOROMETHANE	FREON 13		1	EA		1.000	EA	0		0	100
	COMPRESSED AIR	COMPRESSED AIR	215577-00	1	CY							
	CYCLIZED POLYISOPREENE	PHOTORESIST, KTI NEG 747		197	GL		71.470	P	0.87	SG	5	15

CHEMICALS USED PER P/R SYSTEM DURING 1987

	DEVELOPER, SHIPLEY 1350	DEVELOPER, SHIPLEY 1350	210111-00	1150	GL	9591.000		P	1		
	DEVELOPER, SHIPLEY 318	DEVELOPER, SHIPLEY 318	210111-02	3416	GL	0.000		P	1		
S	DICHLORODIFLUOROMETHANE	MS 180		144	P		28.800	P	1.57	SG	0 20
S	DICHLORODIFLUOROMETHANE	MS 136		51	P		17.850	P	1.57	SG	35 40
S	DICHLORODIFLUOROMETHANE	MS 190		36	P		7.200	P	1.57	SG	0 20
S	DICHLORODIFLUOROMETHANE	MS 190HD		36	P		7.200	P	1.57	SG	0 20
S	DICHLORODIFLUOROMETHANE	MS 240		24	P		24.000	P	1.57	SG	0 100
S	DICHLORODIFLUOROMETHANE	MS 220 AERO-DUSTER		12	P		12.000	P	1.57	SG	100 0
S	DICHLORODIFLUOROMETHANE	MS 230 CONTACT RE-NU		4	P		0.800	P	1.57	SG	20 0
	DICHLOROSILANE	DICHLOROSILANE	210367-00	540	CY						
	DICHLOROSILANE	DICHLOROSILANE	210367	990	P	990.000		P			
	DIMETHYL FORMAMIDE	BURMAR EKJ4		24	P	24.000		P	0	0	0
	DODECYLBENZENE SULFONIC ACID	STRIPPER, BURMAR 712D		12740	GL		26562.900	P	1	25	0
	DPD SALT	HACH TOTAL CHLORINE REAGENT		2	EA		0.100	EA	2.49	SG	0 5
	DPD SALT	HACH FREE CHLORINE REAGENT		1	PK		0.050	PK	2.36	SG	0 5
S	EDTA	HACH TOTAL CHLORINE REAGENT		2	EA		0.100	EA	2.49	SG	0 5
S	EDTA	HACH FREE CHLORINE REAGENT		1	PK		0.050	PK	2.36	SG	0 5
S	ETHANOL	MARKEM INK FORM C		36.5	P		18.250	P	0.79	SG	30 70
S	ETHANOL	THINNER, KESTER 4163		217	GL		629.080	P	0.79	SG	44 0
	ETHANOLAMINE	ETHANOLAMINE	210062-12	2	GL	16.680		P	1		
S	ETHYL ACETATE	MARKEM INK FORM F		36.5	P		18.250	P	0	30	70
S	ETHYL ALCOHOL	ETHYL ALCOHOL	210062-04	4032	L	683.561		P	0.79		
S	ETHYL ALCOHOL	FLUX, KENCO 934-SA		1	GL		2.174	P	0.79	33	0
S	ETHYL ALCOHOL	BLACO-TRON TMS PLUS		3780	P		151.200	P	1.46	SG	4 0
	FATTY ACIDS	FLUX, KENCO 934-SA		1	GL		2.752	P	1	33	0
S	FC 40	FC 40	210062-05	1800	P	1800.000		P	1.9		
S	FC 70	FC 70	210062-11	240	P	240.000		P	1.9		
S	FC 71	FC 71	210062-08	15	P	15.000		P	1.9		
S	FC 77	FC 77	210062-00	462	P	462.000		P	1.8		
S	FC 84	FC 84	210062-12	3220	P	3220.000		P	1.7		
	FLUX, ALPHA 250 HF	FLUX, ALPHA 250 HF	210062-07	24	GL	200.160		P	1		
	FORMING GAS 10%	FORMING GAS 10%	210203	28600	CF	1879.252		P	0.89		
	FORMING GAS 5%	FORMING GAS 5%	210630-00	9	CY	117.798		P			
S	FREON 115	FREON 115	210635	2	CY	40.000		P			
	GREASE, SILICON, HIGH	GREASE, SILICON, HIGH	215454-00	53	TN	53.000		TN			
	GUM RESIN	FLUX, ALPHA 611		12	GL	30.024		P	0.3	SG	0 0
	HELIUM	HELIUM	215574-00	33	CY						
	HELIUM	HELIUM	215574-00	118	CY						
	HELIUM	HELIUM	210636-00	2	CY						
S	HMDS	HMDS 10%		4440	GL		2851.279	P	0.77	10	0
S	HMDS	HMDS	210062-02	148	GL	950.426		P	0.77		
	HYDROGEN	HYDROGEN	210144-00	14040	CF						
	HYDROGEN PEROXIDE	HYDROGEN PEROXIDE	210062-00	14364	GL	143754.912		P	1.2		
S	IPA	THINNER, KESTER 4163		217	GL		743.458	P	0.79	SG	52 0
S	IPA	FLUX, ALPHA 100		1	GL		3.294	P	0.79	SG	50 75
S	IPA	FLUX, KESTER 2163		125	GL		378.845	P	0.79	SG	46 0
	ISOPARAFFINIC HYDROCARBONS	DEVELOPER, WAYCOAT NEGATIVE		7646	GL	47825.730		P	0.75	SG	0 0
	ISOPHORONE	MARKEM INK FORM G		36.5	P		18.250	P	0.92	SG	30 70
S	ISOPROPYL ALCOHOL	FLUX, KESTER 135		10	GL		38.873	P	0.79		59 0
S	ISOPROPYL ALCOHOL	ISOPROPYL ALCOHOL	210062-01	9612	GL	63329.623		P	0.79		
S	ISOPROPYL ALCOHOL	FLUX, ALPHA 611		12	GL	79.063		P	0.79	SG	0 0
S	ISOPROPYL ALCOHOL	ETHYL ALCOHOL		4032	L		34.178	P	0.79		5 0
	JANUS GREEN B	JANUS GREEN B	210062-08	0.026	KG	0.057		P			
	LANTHANUM CHLORIDE	LANTHANUM CHLORIDE	210062-12	180	P	180.000		P			
	MARKEM 320	MARKEM 320	210285-00	100	GL	700.560		P	0.84		
	MARKEM 500	MARKEM 500	210285-01	28	GL	217.174		P	0.93		

CHEMICALS USED PER P/R SYSTEM DURING 1987

	MONOETHANOLAMINE	MARKEM 535		84	GL		35.729	P	1.02	SG	5	15	
	NEUTRACIT	NEUTRACIT	215216-00	3	EA								
	NEUTRASOL	NEUTRASOL	215216-00	5	CT								
	NITROGEN	NITROGEN	215571-00	1	CY								
	NITROGEN	NITROGEN	215577-00	3	CY								
	NITROGEN	NITROGEN	210328	18758	CF								
	NITROGEN	NITROGEN	210328-00	67402	CF								
	NITROGEN TRIFLUORIDE	NITROGEN TRIFLUORIDE	210640-00	1	CY				0.19	P/CF			
	NITROGEN TRIFLUORIDE	NITROGEN TRIFLUORIDE	210640-00	1	CY				0.19	P/CF			
	NITROMETHANE	BLACO-IRON TMS PLUS		3780	P		20.790	P	1.46	SG	0	0.5	
	NITROUS OXIDE	NITROUS OXIDE	210431-00	54	CY				1.23				
	NITROUS OXIDE	NITROUS OXIDE	210431	520	P	520.000		P	1.23				
S	N-BUTYL	PHOTORESIST, SHIPLEY AZ 1370		48	GL		17.614	P	0.88		5	0	
S	N-BUTYL	PHOTORESIST, SHIPLEY 1400-27		432	GL		190.232	P	0.88		6	0	
S	N-BUTYL ACETATE	PHOTORESIST, SHIPLEY S1400-21		4	GL		2.055	P	0.88		7	0	
S	N-BUTYL ACETATE	PHOTORESIST, SHIPLEY ECI 1000		0.25	GL		0.128	P	0.88	SG	7	0	
S	N-BUTYL ACETATE	PHOTORESIST, SHIPLEY MICROPOSIT SAL 601-ER7		0.5	GL		0.257	P	0.88	SG	7	0	
S	N-BUTYL ACETATE	PHOTORESIST, SHIPLEY S1400-17		0.5	GL		0.257	P	0.88	SG	7	0	
S	N-BUTYL ACETATE	PHOTORESIST, HOECHST AZ 4903		1.5	GL		0.550	P	0.88	SG	5	0	
S	N-BUTYL ACETATE	PHOTORESIST, SHIPLEY S1400-27		770	GL		339.071	P	0.88	SG	6	0	
S	N-BUTYL ACTATE	PHOTORESIST, SHIPLEY THINNER A		220	GL		145.316	P	0.88	SG	9	0	
S	N-METHYL-2-PYRROLIDONE	STRIPPER, SHIPLEY 1165		184	GL		1299.372	P	1		95	0	
	OIL, AQUA #590	OIL, AQUA #590	210062-06	3	GL	25.020		P	1				
	OIL, MOLLIS #600	OIL, MOLLIS #600	210062-08	345	GL	2877.300		P	1				
	OIL, HYDRAULIC RNOAW68	OIL, HYDRAULIC RNOAW68	215362-00	385	GL	3210.900		P	1				
	OIL, MOBIL DTE LIGHT	OIL, MOBIL DTE LIGHT	215477-00	220	GL	1596.276		P	0.87				
	ORGANIC SALTS	FLUX, KENCO 934-SA		1	GL	8.340		P	1		0	0	
	OXTYLPHENOL POLYETHOXYLATE	TRITON X-100		90	P		4.500	P	0		5	0	
	OXYGEN	OXYGEN	210322-00	37164	CF				1.14				
	OXYGEN	OXYGEN	210322	5904	CF				1.14				
	OXYGEN	DE 100		693	CF		55.440	CF	1.14		8	0	
	PALLADIUM CHLORIDE	RTM SOLUTION 8		2	GL		0.167	P	1		1	0	
	PDE 100	PDE 100	210321-00	21	CY								
	PDE 100	PDE 100	210321-00	915	CF								
S	PGMEA	PHOTORESIST, HOECHST AZ 5214		34	GL		200.789	P	0.97	SG	73	0	
S	PGMEA	PHOTORESIST, HOECHST AZ 5206		4	GL		26.211	P	0.97	SG	81	0	
S	PGMEA	THINNER, HOECHST AZ 1500		190	GL	808.980		P	0.97	SG	0	0	
	PHOSPHATE	DEVELOPER, SHIPLEY MICROPOSIT		1341	GL	11743.137		P	1.05	SG	0	0	
	PHOSPHINE 100%	PHOSPHINE 100%	210176-00	2	P	2.000		P					
	PHOSPHINE 15%	PHOSPHINE 15%	210215-00	108	CY	2604.779		P					
	PHOSPHINE 15%	PHOSPHINE 15%	210215	119	CF	2870.081		P					
	PHOSPHINE 1%	PHOSPHINE 1%	210176-00	4080	CF	296.153		P					
	PHOSPHINE 1%	PHOSPHINE 1%	210176-00	22	CY	383.256		P					
	PHOSPHOROUS OXYCHLORIDE	PHOSPHOROUS OXYCHLORIDE	210163	49.5	KG	109.128		P	1.58				
	PHOSPHOROUS TRIBROMIDE	PHOSPHOROUS TRIBROMIDE	210448	3.25	KG	7.165		P	2.85				
	POTASSIUM HYDROXIDE	E-100		100	P		30.000	P	1.46		10	0	
	POTASSIUM HYDROXIDE	CAB-O-SPERSE SC-3010		1980	GL		241.093	P	1.46		0	1	
	POTASSIUM HYDROXIDE	POTASSIUM HYDROXIDE	210062-03	3140	GL	38233.396		P	1.46				
	POTASSIUM HYDROXIDE	DEVELOPER, HOECHST AZ 421K		13	GL		1.583	P	1.46	SG	1	0	
	POTASSIUM HYDROXIDE, PELLETS	POTASSIUM HYDROXIDE, PELLETS	210062-02	1400	KG	3036.440		P	2.04				
	POTASSIUM IODATE	HACH TOTAL CHLORINE REAGENT		2	EA		0.600	EA	2.49	SG	0	30	
	POTASSIUM PHOSPHATE	HACH TOTAL CHLORINE REAGENT		2	EA		1.000	EA	2.49	SG	0	50	
	POTASSIUM PHOSPHATE	HACH FREE CHLORINE REAGENT		1	PK		0.700	PK	2.36	SG	0	70	
	PROPRIETARY SUBSTITUTED HETEROCYCLE	PHOTORESIST, SHIPLEY MICROPOSIT SAL 601-ER7		0.5	GL		0.714	P	8.6	SG	1.9	0	
	P-TOLUENE SULFONIC ACID	STRIPPER, SHIPLEY 140		1368	GL		1255.003	P	1.1	SG	10	0	
	RESIN	PHOTORESIST, ULTRAMAC PR 914		2	GL		5.004	P	1		30	0	

CHEMICALS USED PER P/R SYSTEM DURING 1987

	RESIN	FLUX, KESTER 135		10	GL		34.194	P	1		41	0
	RUST-LICK G-1066-D	RUST-LICK G-1066-D	210062-05	22550	GL	188067.000		P	1			
S	SDA 30 ALCOHOL	FREON TE		8	GL		4.030	P	1.51	SG	4	0
	SILANAMINE	HMDS 10%		4440	GL	37029.600		P	1		0	0
	SILANAMINE	HMDS		148	GL	1234.320		P	1		0	0
	SILANAMINE	HMDS BTL		21.6	KG	0.057		P	0		0	0
	SILANE 100%	SILANE 100%	210177	101.25	KG	223.216		P				
	SILANE 2%	SILANE 2%	210164-00	9	CY							
	SILANE 4%	SILANE 4%	210164-00	22080	CF	1608.653		P				
	SILICON DIOXIDE	CAB-O-SPERSE SC-1		4455	GL		13375.692	P	1.2	SG	30	0
	SILICON DIOXIDE	CAB-O-SPERSE SC-3010		1980	GL		9953.960	P	1		30	0
	SILICON TETRACHLORIDE	SILICON TETRACHLORIDE	210082	7800	P	7800.000		P				
	SODIUM CHLORIDE	COOL AMP		4	P		1.600	P	2.15		40	50
	SODIUM CITRATE	HACH SODIUM CITRATE REAGENT		3	GL		8.782	P	1.17	SG	30	0
	SODIUM HYPOPHSPHITE	RTM SOLUTION C		2	GL		0.000	P	0		16	0
	SODIUM METABISULFITE	HACH AMINO ACID SOLUTION		2	GL		1.785	P	1.07	SG	10	0
	SODIUM MOLYBDATE	HACH MOLYBDATE 3 REAGENT		3	GL		6.405	P	1.28	SG	20	0
	SODIUM PHOSPHATE	HACH TOTAL CHLORINE REAGENT		2	EA		0.600	EA	2.49	SG	0	30
	SODIUM PHOSPHATE	HACH FREE CHLORINE REAGENT		1	PK		0.400	PK	2.36	SG	40	0
	SODIUM SULFITE	HACH AMINO ACID SOLUTION		2	GL		0.892	P	1.07	SG	5	0
	STANNOUS SULFATE	STANNOUS SULFATE	210062-03	36	KG	79.366		P	3.95			
	SULFUR HEXAFLUORIDE	SULFUR HEXAFLUORIDE	210582	1380	P	1380.000		P	0.38	P/CF		
	SYLOID 244 X1661	SYLOID 244 X1661	210251	7170	P	7170.000		P				
	SYLOID 244 X1662	SYLOID 244 X1662	210251-00	3240	P	3240.000		P				
S	TELOMER OF TETRAFLUOROETHANE	MS 136		51	P		0.765	P	1		1	2
S	TETRAFLUOROMETHANE	DE 100		693	CF		637.560	CF	1		92	0
S	TETRAFLUOROMETHANE	FREON 14	210307-00	9	CY	630.000		P				
S	TETRAFLUOROMETHANE	FREON 14	210307-00	840	P	840.000		P				
S	TETRAFLUOROMETHANE	FREON 14	210307	140	P	140.000		P				
	TETRAMETHYL AMMONIUM HYDROXIDE	DEVELOPER, HOECHST AZ 327 MIF		184	GL		76.728	P	1	SG	5	0
	TETRAMETHYL AMMONIUM HYDROXIDE	DEVELOPER, SHIPLEY XP6043 CD 26.8		4	GL		0.667	P	1	SG	2	0
	TETRAMETHYL AMMONIUM HYDROXIDE	DEVELOPER, SHIPLEY MF 320		76	GL	633.840		P	1	SG	0	0
	TETRAMETHYL AMMONIUM HYDROXIDE	DEVELOPER, HOECHST AZ 440 MIF		128	GL		42.701	P	1	SG	4	0
	TETRAMETHYL AMMONIUM HYDROXIDE	DEVELOPER, SHIPLEY MF 319		460	GL		76.728	P	1	SG	2	0
	TETRAMETHYL AMMONIUM HYDROXIDE	DEVELOPER, SHIPLEY MF 314		1448	GL		362.290	P	1	SG	3	0
	TETRAMETHYL AMMONIUM HYDROXIDE	DEVELOPER, WAYCOAT HPRD 402		1168	GL		292.334	P	1	SG	3	0
	TIN ANODE ALPHA METAL	TIN ANODE ALPHA METAL	210193-00	24	EA							
	TRIBUTYL PHOSPHATE	MARKEM INK FORM J		36.5	P		18.250	P	0.98	SG	30	70
	TRICHLOROSILANE	TRICHLOROSILANE	210239	161320	P	161320.000		P	1.22			
S	TRIFLOUROMETHANE	TRIFLOUROMETHANE	210591	72	CY							
	UNDOPED SPIN-ON	UNDOPED SPIN-ON	210621	30	EA							
	V M & P NAPTHA	BURMAR EK34		24	P	24.000		P	0		0	0

TABLE V

JULY REPORT CHEMICAL	TRADE CHEMICAL	REC AMT	COMPONENT AMT	CODE
1,1,1 TRICHLOROETHANE	TCA BUBBLERS	13	22.178276	S
1,1,1 TRICHLOROETHANE	MS 136	51	9.69	S
1,1,1 TRICHLOROETHANE	TCA BUBBLERS/APACHE	11.2	24.69152	S
1,1,1 TRICHLOROETHANE	1,1,1 TRICHLOROETHANE	10098	10098	S
1,1,1 TRICHLOROETHANE	1,1,1 TRICHLOROETHANE	6024	72094.6296	S
1,1,1 TRICHLOROETHANE	CLEANER, ALPHA 565	11	118.48221	S
1,1,1 TRICHLOROETHANE	BURMAR EK34	24	24	S
-- Sum				
			82391.67161	
1,2,4 TRICHLOROBENZENE	STRIPPER, BURMAR 712D	12740	69329.169	S
-- Sum				
			69329.169	
ACETONE	ACETONE	37684	248284.8024	S
ACETONE	FREON TA 55	110	22	S
-- Sum				
			248306.8024	
AROMATIC PHENOL	STRIPPER, BURMAR 712D	12740	22633.71583	S
-- Sum				
			22633.71583	
BUTYL ALCOHOL	BUTYL ALCOHOL	8	52.0416	S
-- Sum				
			52.0416	
CARBON TETRACHLORIDE	CARBON TETRACHLORIDE	48	20.163744	S
-- Sum				
			20.163744	
CRESOL	MARKEM INK FORM D	36.5	18.25	S
CRESOL	STRIPPER, HUNT MICROSTRIP	9135	13292.66188	S
-- Sum				
			13310.91188	
DIMETHYL PHTHALATE	MARKEM INK FORM E	36.5	36.5	S
-- Sum				
			36.5	
ETHYLBENZENE	PHOTORESIST, WAYCOAT HNR 999	35	25.3953	S
ETHYLBENZENE	PHOTORESIST, WAYCOAT HR 200	1774	1415.896812	S
ETHYLBENZENE	PHOTORESIST, WAYCOAT HR 100	708	513.71064	S
ETHYLBENZENE	PHOTORESIST, WAYCOAT SC 100	176	127.70208	S
ETHYLBENZENE	PHOTORESIST, WAYCOAT NEG VHR 3	298	281.089692	S
-- Sum				
			2363.794524	
ETHYLENE GLYCOL MONOETHYL ACET	MARKEM INK FORM H	36.5	18.25	S
ETHYLENE GLYCOL MONOETHYL ACET	MARKEM INK FORM I	36.5	18.25	S
-- Sum				
			36.5	
METHANOL	METHANOL	11016	72580.0176	S
-- Sum				
			72580.0176	
METHYL ALCOHOL	FREON TMS 650	3780	226.8	S
METHYL ALCOHOL	FREON TMS	8780	965.8	S
METHYL ALCOHOL	ETHYL ALCOHOL	4032	42.0775488	S
-- Sum				
			1234.677549	
METHYLENE CHLORIDE	FREON TMC 55	189	102.06	S
METHYLENE CHLORIDE	MS 190	72	28.8	S
-- Sum				
			130.86	
TRICHLOROTRIFLUOROETHANE	MS 180	144	115.2	S
TRICHLOROTRIFLUOROETHANE	FREON TMC 55	189	86.94	S
TRICHLOROTRIFLUOROETHANE	FREON TA 55	110	66	S
TRICHLOROTRIFLUOROETHANE	FREON TMS 650	3780	3553.2	S

JULY REPORT CHEMICAL	TRADE CHEMICAL	REC AMT	COMPONENT AMT	CODE
TRICHLOROTRIFLUOROETHANE	FREON TE	8	100.560384	S
TRICHLOROTRIFLUOROETHANE	FREON TMS	8780	7814.2	S
TRICHLOROTRIFLUOROETHANE	FREON TF	73830	73830	S
TRICHLOROTRIFLUOROETHANE	MS 136	51	1.785	S
TRICHLOROTRIFLUOROETHANE	MS 230 CONTACT RE-NU	22	17.6	S
TRICHLOROTRIFLUOROETHANE	MS 190	72	29.088	S
TRICHLOROTRIFLUOROETHANE	ACIDITY TEST KIT - PFPE	25	22.7	S
-- Sum				
			85637.27338	
XYLENE	MARKEM INK FORM B	36.5	36.5	S
XYLENE	PHOTORESIST, HOECHST AZ 4903	1.5	0.430344	S
XYLENE	PHOTORESIST, WAYCOAT SC 100	176	908.886528	S
XYLENE	PHOTORESIST, KTI NEG 747	747	4607.693208	S
XYLENE	PHOTORESIST, WAYCOAT HPR 205	132	37.870272	S
XYLENE	PHOTORESIST, SHIPLEY AZ 1370	48	17.21376	S
XYLENE	PHOTORESIST, WAYCOAT HNR 999	35	223.42026	S
XYLENE	PHOTORESIST, SHIPLEY ECX 1000	0.25	0.125517	S
XYLENE	PHOTORESIST, WAYCOAT HR 200	1774	9924.593328	S
XYLENE	PHOTORESIST, SHIPLEY MICROPOSI	0.25	0.125517	S
XYLENE	PHOTORESIST, ULTRAMAC PR 914	2	0.71724	S
XYLENE	PHOTORESIST, SHIPLEY S1400-17	0.5	0.251034	S
XYLENE	PHOTORESIST, WAYCOAT HPR 204	872	250.173312	S
XYLENE	PHOTORESIST, SHIPLEY S1400-21	4	2.00B272	S
XYLENE	PHOTORESIST, WAYCOAT HR 100	708	4417.911504	S
XYLENE	PHOTORESIST, SHIPLEY S1400-27	764	328.782816	S
XYLENE	PHOTORESIST, WAYCOAT NEG VHR 3	298	1581.657648	S
XYLENE	PHOTORESIST, SHIPLEY THINNER A	220	142.01352	S
XYLENE	XYLENE	8208	58871.0592	S
-- Sum				
			81351.43328	
== Sum				
			679415.5324	

JULY 1988 REPORTABLE CHEMICALS IN TOTAL POUNDS

S	X	METHYL ALCOHOL	FREON TMS 650	0.79	856218	1.52	SG	6	0	3780	P	226.8 P
S	X	METHYLENE CHLORIDE	FREON TMC 55	1.34	856216	0		54	0	189	P	102.06 P
S	X	METHYLENE CHLORIDE	MS 190	1.34	856886	0		40	0	72	P	28.8 P
	NL	NICKEL	NICKEL POWDER	8.9						2	EA	2 EA
	Y	NICKEL CHLORIDE	NICKEL PLATING SOLUTION			0		1	0	5	EA	0.05 EA
	Y	NICKEL SULFATE	NICKEL B		857093	1.1	SG	1	0	8	GL	0.08 GL
	Y	NICKEL SULPHATE	NICKEL PLATING SOLUTION			0		60	0	5	EA	3 EA
	X	NITRIC ACID	DS-9-314	1.42	856161	1.19	SG	5	0	1	P	0.05 P
		NITRIC ACID	NITRIC ACID	1.42						72534	P	72534.00 P
	X	NITRIC ACID	STRIPPER, ALLIED RT 2	1.42	856394	0		5	0	L 10044	P	502.2 P
	X	PHOSPHORIC ACID	DS-9-314	1.69	856161	1.19	SG	25	0	1	P	0.25 P
		PHOSPHORIC ACID	PHOSPHORIC ACID	1.69						43848	P	43848.00 P
	Y	SILVER CHLORIDE	COOL AMP		856760	0		10	0	4	P	0.4 P
	X	SODIUM HDYROXIDE	DEVELOPER, SHIPLEY AZ 351	2.13	856442	0		5	0	12	GL	10.65852 P
	X	SODIUM HYDROXIDE	DEVELOPER, CRONALAR CDC-8	2.13	856111	1.38	SG	5	0	6	GL	5.32926 P
		SOLDER, ALPHA 60/40	SOLDER, ALPHA 60/40							2709	P	2709.00 P
		SOLDER TIN/LEAD 62/36	SOLDER TIN/LEAD 62/36							50	P	50.00 P
	X	SULFURIC ACID	HACH MOLYBDATE 3 REAGENT	1.84	856602	1.28	SG	20	0	3	GL	9.20736 P
	X	SULFURIC ACID	STRIPPER, ALLIED RT 2	1.84	856394	0		80	0	6 10044	P	123304.9651 P
		SULFURIC ACID	SULFURIC ACID	1.84						762660	P	762660.00 P
S	X	TRICHLOROTRIFLUOROETHANE	ACIDITY TEST KIT - PFPE	1.57	857157	1.49	SG	90.9	0	25	EA	22.7 EA
S	X	TRICHLOROTRIFLUOROETHANE	FREON TA 55	1.57	856733	1.41	SG	60	0	110	P	66 P
S	X	TRICHLOROTRIFLUOROETHANE	FREON TE	1.57	856764	1.51	SG	96	0	8	GL	100.560384 P
S	X	TRICHLOROTRIFLUOROETHANE	FREON TF	1.57	856765	0		100	0	73830	P	73830 P
S	X	TRICHLOROTRIFLUOROETHANE	FREON TMC 55	1.57	856216	0		46	0	189	P	86.94 P
S	X	TRICHLOROTRIFLUOROETHANE	FREON TMS	1.57	856217	0		89	0	8780	P	7814.2 P
S	X	TRICHLOROTRIFLUOROETHANE	FREON TMS 650	1.57	856218	1.52	SG	94	0	3780	P	3553.2 P
S	X	TRICHLOROTRIFLUOROETHANE	MS 136	1.57	856885	0		3	4	51	P	1.785 P
S	X	TRICHLOROTRIFLUOROETHANE	MS 180	1.57	856884	0		0	80	144	P	115.2 P
S	X	TRICHLOROTRIFLUOROETHANE	MS 190	1.57	856886	0		0	40.4	72	P	29.088 P
S	X	TRICHLOROTRIFLUOROETHANE	MS 230 CONTACT RE-NU	1.57		1.57	SG	80	0	22	P	17.6 P
S	X	XYLENE	MARKEM INK FORM B	0.86	856639	0.87	SG	40	0	36.5	P	36.5 P
S	X	XYLENE	PHOTORESIST, HOECHST AZ 4903	0.86	856763	1.08	SG	4	0	1.5	GL	0.430344 P
S	X	XYLENE	PHOTORESIST, KTI NEG 747	0.86	856455	0.87	SG	80	92	747	GL	4607.693208 P
S	X	XYLENE	PHOTORESIST, SHIPLEY AZ 1370	0.86	856304	0		5	0	48	GL	17.21376 P
S	X	XYLENE	PHOTORESIST, SHIPLEY EC1 1000	0.86	856820	0		7	0	0.25	GL	0.125517 P
S	X	XYLENE	PHOTORESIST, SHIPLEY MICROPOSI	0.86		8.6	SG	7	0	0.25	GL	0.125517 P
S	X	XYLENE	PHOTORESIST, SHIPLEY S1400-17	0.86	856309	1.04	SG	7	0	0.5	GL	0.251034 P
S	X	XYLENE	PHOTORESIST, SHIPLEY S1400-21	0.86	856542	0		7	0	4	GL	2.008272 P
S	X	XYLENE	PHOTORESIST, SHIPLEY S1400-27	0.86	856310	1.04	SG	6	0	764	GL	328.782816 P
S	X	XYLENE	PHOTORESIST, SHIPLEY THINNER A	0.86	856311	1.04	SG	9	0	220	GL	142.01352 P
S	X	XYLENE	PHOTORESIST, ULTRAMAC PR 914	0.86	856468	0		5	0	2	GL	0.71724 P
S	X	XYLENE	PHOTORESIST, WAYCOAT HNR 999	0.86	856328	0		89	0	35	GL	223.42026 P
S	X	XYLENE	PHOTORESIST, WAYCOAT HPR 204	0.86	856324	0		4	0	872	GL	250.173312 P
S	X	XYLENE	PHOTORESIST, WAYCOAT HPR 205	0.86	856325	0		4	0	132	GL	37.870272 P
S	X	XYLENE	PHOTORESIST, WAYCOAT HR 100	0.86	856318	0		87	0	708	GL	4417.911504 P
S	X	XYLENE	PHOTORESIST, WAYCOAT HR 200	0.86	856320	0		78	0	1774	GL	9924.593328 P
S	X	XYLENE	PHOTORESIST, WAYCOAT NEG VHR 3	0.86	856321	0		74	0	298	GL	1581.657648 P
S	X	XYLENE	PHOTORESIST, WAYCOAT SC 100	0.86	856317	0		72	0	176	GL	908.886528 P
S		XYLENE	XYLENE	0.86						8208	GL	58871.0592 P

JULY 1988 REPORTABLE CHEMICALS IN TOTAL POUNDS

		JULY REPORT CHEMICAL	TRADE CHEMICAL	DENS/PURE	MSDS	DENS/M	FROM	TO	%	INDIC REC AMT		COMPONENT AMT	
S		1,1,1 TRICHLORGETHANE	TCA BUBBLERS	1.435		0	0	0		13	BBL	22.178276	P
S	NL	1,1,1 TRICHLOROETHANE	TCA BUBBLERS/APACHE	1.435						11.2	KG	24.69152	P
S		1,1,1 TRICHLOROETHANE	1,1,1 TRICHLORGETHANE	1.435						6024	GL	72094.6296	P
S		1,1,1 TRICHLOROETHANE	1,1,1 TRICHLOROETHANE	1.435						10098	P	10098.00	P
S	X	1,1,1 TRICHLOROETHANE	BURMAR EK34	1.435	856918	0	0	0		24	P	24	P
S	X	1,1,1 TRICHLOROETHANE	CLEANER, ALPHA 565	1.435	856082	1.28	SG	90	0	11	GL	118.48221	P
S	X	1,1,1 TRICHLOROETHANE	MS 136	1.435	856885	0		16	22	51	P	9.69	P
S	X	1,2,4 TRICHLOROBENZENE	STRIPPER, BURMAR 712D	1.45	856396	0		40	50	12740	GL	69329.169	P
S		ACETONE	ACETONE	0.79						37684	GL	248284.80	P
S	X	ACETONE	FREON TA 55	0.79	856733	1.41	SG	10	30	110	P	22	P
	NL	ALUMINUM OXIDE	ALUMINUM POWDER	3.99						2800	P	2800	P
		ALUMINUM OXIDE	ALUMINUM OXIDE	3.99						800	P	800.00	P
		AMMONIA	AMMONIA							350	P	350.00	P
S	Y	AROMATIC PHENOL	STRIPPER, BURMAR 712D	1.0651	856396	0		15	25	12740	GL	22633.71583	P
		ARSINE 100 PPM	ARSINE 100 PPM					0.3		2320	CF	13.94	P
		ARSINE 100 PPM	ARSINE 100 PPM					0.3		10	CY	12.74	P
		ARSINE 15%	ARSINE 15%							45	CY	57.24	P
		ARSINE 15%	ARSINE 15%							58	CF	73.78	P
		ARSINE 25 PPM	ARSINE 25 PPM					0.2		3248	CF	19.40	P
		ARSINE 25 PPM	ARSINE 25 PPM					0.2		10	CY	12.72	P
		ARSINE 8000 PPM	ARSINE 8000 PPM					23.3		1392	CF	10.34	P
		ARSINE 8000 PPM	ARSINE 8000 PPM					23.8		5104	CF	37.90	P
		ARSINE 8000 PPM	ARSINE 8000 PPM					23.8		23	CY	36.20	P
S	NL	BUTYL ALCOHOL	BUTYL ALCOHOL	0.78						8	GL	52.0416	P
	Y	CADMIUM MERCURY SULFIDE	MARKEM INK FORM 4		856651	5.1	SG	40	0	36.5	P	14.6	P
	Y	CADMIUM SULFOSELENIDE RED	MARKEM INK FORM 3		856650	5.2	SG	40	0	36.5	P	14.6	P
S		CARBON TETRACHLORIDE	CARBON TETRACHLORIDE	1.59						48	L	20.163744	P
	NL	CHLORINE	CHLORINE CYLINDER	1.42						60	P	60	P
	Y	CHROMIC ACID	STRIPPER, ALLIED RT 2		856394	0		1	0	10044	P	100.44	P
S	X	CRESOL	MARKEM INK FORM D	1.026333	856641	1.03	SG	30	70	36.5	P	18.25	P
S	X	CRESOL	STRIPPER, HUNT MICROSTRIP	1.026333	856401	0		17	0	9135	GL	13292.66187	P
S	X	DIMETHYL PHTHALATE	MARKEM INK FORM E		856642	0		0	0	36.5	P	36.5	P
S	X	ETHYLBENZENE	PHOTORESIST, WAYCOAT HNR 999	0.87	856328	0		10	0	35	GL	25.3953	P
S	X	ETHYLBENZENE	PHOTORESIST, WAYCOAT HR 100	0.87	856318	0		10	0	708	GL	513.71064	P
S	X	ETHYLBENZENE	PHOTORESIST, WAYCOAT HR 200	0.87	856320	0		11	0	1774	GL	1415.896812	P
S	X	ETHYLBENZENE	PHOTORESIST, WAYCOAT NEG VHR 3	0.87	856321	0		13	0	298	GL	281.089692	P
S	X	ETHYLBENZENE	PHOTORESIST, WAYCOAT SC 100	0.87	856317	0		10	0	176	GL	127.70208	P
S	Y	ETHYLENE GLYCOL MONOETHYL ACET	MARKEM INK FORM H		856645	0.9	SG	30	70	36.5	P	18.25	P
S	Y	ETHYLENE GLYCOL MONOETHYL ACET	MARKEM INK FORM I		856646	0.98	SG	30	70	36.5	P	18.25	P
	X	HF	ETCH, BUFFERED OXIDE ETCH 9:1	1.18		0		10	0	1464	GL	1440.75168	P
		HYDROCHLORIC ACID	TUBE TRAILER									58480	P
	X	HYDROCHLORIC ACID	DS-9-314	1.19	856161	1.19	SG	10	0	1	P	0.1	P
		HYDROCHLORIC ACID	HYDROCHLORIC ACID	1.19						28080	P	28080.00	P
	X	HYDROCHLORIC ACID	NICKEL B	1.19	857093	1.1	SG	2	0	8	GL	1.574592	P
	X	HYDROCHLORIC ACID	RTM SOLUTION B	1.19	857136	0		1	0	2	GL	0.196824	P
		HYDROFLUORIC ACID	HYDROFLUORIC ACID	1.18						61560	P	61560.00	P
		HYDROFLUORIC ACID 10:1	HYDROFLUORIC ACID 10:1	1.18				10		1296	GL	1275.41952	P
		HYDROFLUORIC ACID 40:1	HYDROFLUORIC ACID 40:1	1.18				0.4		4320	GL	170.055936	P
		HYDROGEN CHLORIDE	HYDROGEN CHLORIDE	1.19						68	CY	4080	P
	X	HYDROQUINONE	DEVELOPER, CRONALAR CDC-A	1.31	856110	1.11	SG	16	0	6	GL	10.468384	P
		HYDROQUINONE	HYDROQUINONE	1.31						0.5	KG	1.10	P
	Y	LEAD CHROMATE	MARKEM INK FORM 2		856649	5.9	SG	40	0	36.5	P	14.6	P
S		METHANOL	METHANOL	0.79						11016	GL	72580.3176	P
S	X	METHYL ALCOHOL	ETHYL ALCOHOL	0.79	856171	0		5	0	4032	L	42.0775488	P
S	X	METHYL ALCOHOL	FREON TMS	0.79	856217	0		11	0	3790	P	965.8	P

HARRIS SEMICONDUCTOR

CALENDAR YEAR 1987

VOC – MATERIAL BALANCE

ATTACHMENT 5

WASTE PROFILES

HARRIS ID # : H-005-LB

WASTE COMMON NAME: MIXED SOLVENTS
DOT SHIPPING NAME: "RQ" WASTE FLAMMABLE LIQUID, NOS
DOT HAZARD CLASS : FLAMMABLE LIQUID
UN/NA NUMBER: UN1993
EPA ID # : F003, F005

AUTHORIZED BULK CONTAINER: SS: STEEL
AUTHORIZED DRUM CONTAINER: 17-E / 55 GALLON

***** CHEMICAL CHARACTERISTICS *****

COLOR: BROWN
ODOR: MILD - SWEET
pH: N/A
PHYSICAL STATE @70F: LIQUID
SPECIFIC GRAVITY: 0.8-1.0
PERCENT VOLUME FREE LIQ.: 90% +
LAYERS: 1 OR 2
FLASH POINT: < 70F
BTU/LB:
ASH CONTENT:
OTHER:

METALS (CONC. IN PPM)

ARSENIC: <5	BARIUM: <10	CADMIUM: <1
CHROMIUM: <5	MERCURY: <0.02	LEAD: <5
CHROMIUM (HEX): <5	SELENIUM: <1	SILVER: <5
COPPER: 5 - 50	NICKEL: <5	ZINC: 1 - 20
THALLIUM: --	OTHERS:	

CHEMICAL COMPOSITION	PERCENT	RQ
1.): ACETONE	1.): 20 - 55	1.): 5000
2.): METHANOL	2.): 10 - 40	2.): 5000
3.): ISOPROPANOL	3.): 10 - 40	3.): --
4.): N-BUTYL ACETATE	4.): 2 - 20	4.): --
5.): XYLENE	5.): 1 - 10	5.): 1000
6.): TOLUENE	6.): 1 - 10	6.): 1000
7.): HEXAMETHYLDISILAZANE	7.): 1 - 15	7.): --
8.): WATER	8.): 1 - 10	8.): --
9.): MIK, MEK, ETHYL ACETATE	9.): 1 - 5 @	9.): 5000 @
10.): CELLOSOLVE ACETATE, BENZENE	10.): 1 - 5 @	10.): 1000
11.): CHLORINATED HYDROCARBONS	11.): 1 - 5	11.): --
12.): AROM. & ALIPH. HYDROCARB.	12.): 3 - 20	12.): --

LABELS REQUIRED: FLAMMABLE

LOCATION:
PROCESS SOURCE: MANUFACTURING FAB

MSDS (HARRIS SPEC. # 856---):

SAFETY EQUIPMENT:

SPECIAL INSTRUCTIONS: RQ = 1000#

APPROVAL/DATE Stephen Pfeffer 5/26/88 ENVIRONMENTAL SERVICES

REVISION DATE:

Attachment :

HARRIS

May 13, 1988

Mr. C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tattahassee, Florida 32399-2400

Subject: Completeness Review of AC 05-147321
Building 54 - Permit Consolidation

Dear Mr. Fancy:

This letter is written, on behalf of Harris Semiconductor ("Semiconductor"), in reply to your letter of April 20, 1988. Your letter requested additional information on six (6) items. In addition, you requested information on all assumptions, calculations and reference material.

Item 1. As was indicated on page five (5) of the permit application, an effluent scrubber media (water) is discharged to the on-site waste water treatment plant. The effluent from the waste water discharge plant is disposed of on-site in two industrial deep wells operated in accordance with permit number UC05-126519. The method of operation of the air pollution control equipment is constant. None of the volatile organic compounds ("VOCs") removed by the air pollution control equipment are reclaimed or recycled. The VOCs which are removed by the scrubbers are primarily the water soluble compounds such as acetone and various alcohols. This has been established by several months of analytical data which were collected at the waste water treatment plant between the months of May and December of last year. The monitoring data identified low levels of water soluble VOCs at non-hazardous concentrations. The aerators in the waste water treatment plant are not capable of stripping these compounds, at the concentrations observed, from the water. A comparison of the monitoring data of the influent to the treatment plant with the influent to the deep well injection system has confirmed this. This information was discussed during the February 17, 1988 meeting held in Orlando. Attachment A contains a summary of the analytical data collected at the waste water treatment plant. The several months of monitoring conducted at the various scrubbers and the waste water treatment plant is sufficient to confirm that the water soluble VOCs removed by the scrubbers are not being released to the atmosphere.

It should be noted that confinement in a deep subterranean formation does not constitute release to the atmosphere.

Item 2. Data from the scrubbers monitored during 1988 indicated VOC removal efficiencies between 10% and 20%. The actual removal efficiencies varied depending on the compounds present in the air stream being scrubbed. The typical removal efficiency observed was 13%. Based on this information, 13% was used to forecast the VOC removal efficiency of the scrubbers during non-production hours.

It is not correct to characterize the potential VOC emissions from the facility as being uncontrolled. The procedures employed in handling, storing, using and disposing of production materials and wastes containing organic solvents are designed to minimize any release to the atmosphere. While in storage, when not being used, containers and tanks storing solvents are properly sealed or covered. The facility's waste solvent bulk storage systems are fitted with carbon cannisters to capture VOC emissions. The scrubber systems installed throughout the facility were designed to capture VOC and other emissions. It should be noted that the majority of VOC emissions from the facility emanate from Buildings 54 and 51. These installations were first constructed and permitted in the 1970's. At that time, water scrubbers were an accepted means of controlling VOC emissions. VOC emissions are controlled at the facility. Recent monitoring activities and other sources of information have established that the efficiency of the scrubber systems which are one of the control mechanisms at the facility is not as great as originally projected.

Item 3. At the present time, the material balance report is approximately 70% complete. We have experienced several delays as a result of a change in the record keeping procedures used to store the data on chemical usage rates by the various manufacturing areas. Previous reports used to collect this information could not be used to compile the report due to a change in the computer data base system used by our recveiving department. Ultimately, these changes in record keeping procedures should lead to more accurate reporting in the future. The report will be sent to your attention under separate cover as soon as possible. Our goal is to have the report to you by the end of the month. It should be received no later than mid-June.

Item 4. We assume that by the terms "precursor" and "non-precursor" organic compounds you are referring to VOCs as defined by the Department's regulations. Building 54 has approximately 282 different pieces of process equipment tied in to the exhaust systems. Of these approximately 72 utilize VOCs. There are nineteen (19) work stations where solvents are used in open surface areas. These are not large open top degreasers. The open surface areas are much smaller than one (1) square meter. Relatively small quantities of solvents are in use at any given time. Normal procedures require that any open containers of solvents are emptied at the end of each production shift. Four (4) of the work stations are heated. Due to the nature of the equipment and the processes involved in manufacturing integrated circuits, the number of heated and unheated solvent sources can vary according to the product being manufactured at any given time. The type of degreasing and other activities in which solvents are used at Semiconductor is not typical of what you would find in an ordinary manufacturing operation; as a consequence, it is difficult to describe these processes. To obtain a better understanding of how solvents are used at Semiconductor, we recommend that Department personnel visit the facility.

The information concerning freeboard is not currently available and would take an extensive amount of time to obtain. Our prior experience indicates that this information would not be very useful. In the past, Semiconductor calculated facility VOC emission rates with formulas incorporating such factors as surface area, evaporation rates at various temperature ranges, etc. This approach has proved not to be very accurate. We believe that our current method of monitoring is the most accurate means of determining the actual VOC emissions from the facility.

No - Disagree

Item 5. Our recent monitoring activities were designed to obtain as accurate an accounting of total VOC emissions as reasonably possible. The monitoring was conducted over a typical eight hour shift in order to obtain a snapshot of a normal production shift for any emission point in question. With this information, an annual emission rate in tons per year was calculated using a normal production schedule. In order to account for all potential VOC emissions, monitoring was conducted during a scheduled non-production shift. The observed emissions were very low, but over a one (1) year period could account for some of the facility's emissions. Based on existing data, we cannot with certainty identify the specific sources of VOC emissions during non-production shifts. However, available information

indicates three (3) possible sources of VOC emissions: 1) off-gassing of containers (one gallon bottles) stored in chemical storage cabinets; 2) process equipment which may have been going through an automatic cleaning or process cycle; and 3) potential unreported equipment maintenance functions which may have utilized cleaning with solvents. We believe that these emissions occur on a regular basis and therefore have included them in the permit application.

Item 6. Attachment B contains our current internal schedule for Semiconductor's initial evaluation of the feasibility of a cogeneration plant. At our meeting on February 17, 1988, we indicated Semiconductor was committed to investigating and where practical implementing commercially reasonable measures to reduce VOC emissions. This commitment was made notwithstanding the fact that the facility's VOC emissions fall far below any applicable threshold under the "Prevention of Significant Deterioration" regulations and the fact that the most significant sources of VOC emissions were first constructed and operated many years ago.

There are several alternatives which could lead to reductions in VOC emissions and prove to be practical, taking into account economic and other considerations. The gradual substitution over a number of years of current manufacturing processes with less solvent intensive manufacturing processes is a potential means of reducing VOC emissions. This would have to be a very gradual process since investment in current manufacturing equipment and techniques runs into the tens of millions of dollars.

As we discussed at our meeting in February, another possible means of reducing VOC emissions which may prove to be practical is a congeneration plant which incinerates the VOC emissions while creating electricity for the facility. Adequate evaluation of the feasibility of a congeneration plant is a complicated process. Installing such a system and making the necessary modifications to the facility would cost many millions of dollars. In addition, it is likely that annual operating expenses would be several million dollars. Aside from the economic feasibility of such a project, there are environmental and other regulatory concerns that could potentially affect third parties, including the local community. All these factors need to be adequately evaluated before a commitment can be made to proceed with such a project. The review and approval process necessary to justify and authorize an investment of this magnitude

will require a significant amount of time to complete. The schedule for our initial pass at a feasibility study is included for your information as a courtesy. Before a final decision is made on whether to proceed, additional studies may be necessary.

We trust the enclosed information answers all of the items raised in your letter of April 20, 1988. If you should have any questions about the enclosed information, please feel free to contact me at (407)724-7467.

Sincerely,
HARRIS SEMICONDUCTOR

James R. Kolanek

James R. Kolanek, Manager
Environmental Services

E/4020/88

cc: A. T. Sawicki, Orlando DER
Bruce Mitchell, Tallahassee DER

HARRIS SEMICONDUCTOR

WWTP ANALYTICAL SUMMARY

ATTACHMENT A

HARRIS SEMICONDUCTOR - WWTP AERATOR STUDY: 26-Apr-88

	CHLOROFORM		BROMODICHLORO-METHANE		DIBROMOCHLORO-METHANE		12 DICHLORO-BENZENE		14 DICHLORO-BENZENE		ETHYL BENZENE		TETRACHLROETHENE		TRICHLORO-ETHANE		XYLENE		METHANOL		ACETONE		IPA		VINYL CHLORIDE	
DATE	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.	INFL.	EFFL.
13-Feb-87		41		7.8		0		0		0		0		0		0		0				1000				0
30-Apr-87	4.1	5.2	0	8.9	2.9	7.8	0	0	5	0	0	0	0	0	1.6	0	1.4	3.7	2600	3500	5400	1700	3500	2000	0	0
01-May-87	5.3	0	0	0	5.7	10	241	177	0	0	7	0	46	7.8	1.9	0	8.3	31	3300	8100	13300	24600	1800	1300	0	0
13-Aug-87	3	3	0	2	0	2	0	0	0	0	0	0	0	0	2	0	9	0	<1000	<1000	<250	840	<250	<250	0	0
20-Aug-87	11	2	8	2	11	2	0	0	0	0	0	0	0	0	0	0	0	0	<1000	<1000	<250	<250	<250	<250	0	0
27-Aug-87	5	4	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	<1000	<1000	290	450	<250	<250	0	0
03-Sep-87	3	2	0	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	<1000	<1000	2400	2000	1200	<250	0	0
10-Sep-87	4	3	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8800	<1000	5000	4400	4400	4400	0	0
17-Sep-87	5	4	3	6	0	9	0	0	0	0	0	0	0	0	0	0	0	0	<1000	22400	2200	2700	4100	2100	0	0
24-Sep-87																										
01-Oct-87	6	4	2	10	0	9	0	0	0	0	0	0	0	0	0	0	0	0	<1000	<1000	2100	<250	<250	<250	0	0
08-Oct-87	10.3	5.1	2.1	10.6	0	8.9	0	0	0	0	0	0	0	0	0	0	0	0	<1000	<1000	2400	1800	2700	<250	0	0
15-Oct-87	2.2	5	1.3	9.3	0	13.2	0	0	0	0	0	0	0	0	0	0	0	0	2500	<1000	2400	3300	3700	1300	0	0
22-Oct-87	6	2	3	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	5200	<1000	6100	3200	56800	1200	0	0
29-Oct-87																										
05-Nov-87	6	2	2	2	0	2	0	0	0	0	0	0	0	0	6	0	0	0	<1000	<1000	1200	1200	<250	<250	0	0
12-Nov-87	10	7	3	9	1	8	0	0	0	0	0	0	0	0	2	0	0	0	5200	1200	3300	3700	3000	2000	0	0
19-Nov-87	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<1000	<1000	<250	2500	2800	<250	0	0
26-Nov-87	16	7	9	13	4	11	0	0	0	0	0	0	0	0	0	3	0	0	<1000	2200	1600	2400	11300	5700	0	0
03-Dec-87	8	7	4	9	2	4	0	0	0	0	0	0	0	0	36	8	0	0	<1000	2000	<250	1400	5800	3100	0	0
10-Dec-87																										
17-Dec-87																										
24-Dec-87																										
31-Dec-87																										
07-Jan-88																										
14-Jan-88																										
21-Jan-88																										
	all data reported in parts per billion (ppb)																									
AVERAGE	5.4	6.2	1.8	5.2	1.6	5.4	20.1	13.6	0.4	0.0	0.6	0.0	3.8	0.6	0.5	0.0	1.6	2.7	1866.7	2833.3	3465.8	3537.7	6516.7	1025.0	0.0	0.0

HARRIS SEMICONDUCTOR

COGENERATION PROJECT SCHEDULE

ATTACHMENT B

HARRIS SEMICONDUCTOR

COGENERATION PLANT

MILESTONE PROJECT SCHEDULE

FEASIBILITY STUDY COMPLETE	MAY 20, 1988
AIR EMISSIONS PERMIT SUBMITTAL	OCTOBER 1988
START PLANT CONSTRUCTION	MARCH 1989
CONSTRUCTION COMPLETLION	JANUARY 1990
COMMERCIAL OPERATION	MARCH 1990

NOTE: ALL PROJECTED DATES AFTER THE FEASIBILITY STUDY ARE ASSUMING THAT THE STUDY INDICATES A COGENERATION PLANT IS FEASIBLE AND ADDITIONAL STUDIES ARE NOT NECESSARY.

Facility ID # 1000030615
8-9-84

file copy

HARRIS

August 8, 1988

Mr. Bruce Mitchell
State of Florida
Department of Environmental Regulation
Twin Tower Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: Harris Semiconductor - Building 54 Permit Consolidation - AC05-147321

Dear Mr. Mitchell:

This letter is submitted to follow-up on our telephone conversation of July 27, 1988 concerning the subject air permit. I have also recently talked to John Turner about some of these issues.

Below, I have attempted to segregate the issues into distinct categories:

1.) The status of the original applications for the ten operation permits. The specific applications referenced were as follows: AC05-104512, AC05-104513, AC05-104515, AC05-104519, AC05-104521, AC05-104522, AC05-104523, AC05-104524, AC05-104525 and AC05-104527. Mr. Turner indicated that submittal of a Waiver of the ninety (90) time limit for review of these applications would resolve this issue. These forms have been sent to Mr. Collins of the Orlando Office under separate cover. A copy is enclosed for your information.

2.) An unanswered letter from A. T. Sawicki, dated Oct. 13, 1987. We are in receipt of a letter from A. T. Sawicki dated October 29, 1987. We assume that this is the letter to which you were referring. The items raised in this letter were addressed in detail in my letter of October 5, 1987, which was submitted in response to Mr. Sawicki's letter of August 19, 1987. In fact, Mr. Sawicki's letter of October 29, 1987 was nothing more than a restatement of the earlier letter. In addition, many of these issues were also fully addressed during our February 17, 1988 meeting in Orlando. For your information, I have included a copy of my October 5, 1987 letter. The 1987 solvent balance was submitted on June 29, 1988. If there are any other outstanding issues of which we are unaware, please call me.

3.) Annual Chemical Inventory. During our conversation, you expressed concern that the 1987 solvent material balance did not account for 84,000 out of 957,000 pounds of solvents which were projected to have been purchased during 1987. As I indicated, this amounted to less than ten (10) percent of the total VOC/solvents projected to have been used during that year. During our February, 1988 meeting, we indicated that we anticipated the report would have a range of error of approximately twenty (20) percent. A significant effort was put forth to lower the range of error to this level.

The 957,000 pound figure cited above is based, in part, on information contained in material safety data sheets ("MSDS") and other sources of data from the manufacturers and vendors of the chemicals. Much of this information was not precise; ranges of concentration were frequently given. Rather than manipulate the chemical inventory figures to reflect an exact balance, we used average values. If the concentration of VOC/solvents was actually less than these values some or all of the 84,000 pound deficit would vanish.

In addition, during our meeting we indicated that our shipping documents and other records revealed that over 783,000 pounds of solvent bearing wastes were shipped off-site to treatment and disposal facilities. As with the incoming chemicals, we took a conservative approach and used a figure of 560,000 pounds to represent the total amount of VOC/solvents shipped off-site. The 560,000 pound figure was derived from waste stream profile information and random sampling activities. As with the problem with incoming chemicals, there is some error inherent in this method of calculation since there is not precise information on every shipment of waste materials containing VOC/solvents. The actual amount of VOC/solvents shipped off-site could be much higher. This too would reduce the deficit. Significantly increasing sampling activities would increase the accuracy of this data. However, at an annual cost of many thousands of dollars, Harris Semiconductor currently analyzes more of its waste shipments than current laws require or are generally sampled by comparable facilities. At this time, given the limits of current analytical technology, significantly increasing these sampling activities would be prohibitively expensive.

The main point of this discussion is that regardless of their frequency or whether they are by building or the facility at large, because of current data limitations concerning the precise concentrations of VOC/solvents, a range of error of, at least, ten (10) percent will be present when mass balances are conducted.

4.) The most appropriate and accurate means of determining compliance with emission limitations was the last topic of our conversation. In addition to the reasons already noted, a mass balance system is not the most effective or accurate means of determining compliance because such a system will be fraught with human error. At Harris Semiconductor, VOC/solvents are utilized at several hundred work stations scattered throughout the facility which manufacture many different types of integrated circuits. Research and development activities are also conducted in some areas. Over the course of any monthly period, perhaps as many as a thousand people work in these areas. Thousands of different chemicals may be used during the course of any given year. To have a mass balance system which is precise to the point of having a range of error of less than ten (10) percent is not currently possible. Because of the type of manufacturing, the amount of people involved and the other problems previously noted, we cannot guarantee the accuracy of a mass balance system regardless of how frequently it is conducted and whether it is by building or the entire facility.

Instead, we are proposing, as we have in the past, annual stack monitoring of emission points utilizing EPA approved Method 25A to determine compliance with the emission limitations. Using the analytical technology to confirm compliance will significantly reduce the impact of human error. In addition, DER personnel can monitor the sampling activities to insure the samples are taken during periods of significant manufacturing activity to confirm that the analytical values are truly representative of worse case emission levels. It should be noted that it was this technology which first identified the true emission rates for the sources at the facility. Harris Semiconductor will, of course, continue to honor its previous commitments and submit the chemical inventory report on an annual basis.

As per your request, Harris would like to propose the following wording for the special conditions addressing emission limitation compliance and related issues.

A.) Compliance with the VOC/solvent emissions limits for the system shall be determined through sampling and analysis. Once a year, a sample shall be taken and analyzed for each stack, utilizing EPA Method 25A. DER shall receive reasonable prior notice of any scheduled sampling event to enable agency review and participation. An annual report, summarizing the sampling results, shall be due to DER's Central Florida District Office on or before March 1st of each year.

B.) A report shall be submitted, annually on or before July 1st of each year, to DER's Central Florida District Office. The report shall adress the entire Harris Semiconductor facility and reflect the amounts of all VOC/solvents purchased, reclaimed or disposed of during the previous calendar year.

We trust that the above discussion and enclosed information addresses all of the issues raised in our recent conversation. Once again, we would like to extend an invitation to you and other appropriate DER personnel to visit our facility to better understand the nature of our operations.

Harris Semiconductor appreciates your cooperation in this matter, and we look forward to dealing with you in the future. If you should have any questions or would like to discuss this matter further, please call me at (407)724-7467.

Sincerely,
HARRIS SEMICONDUCTOR

James R. Kolanek

James R. Kolanek
Manager, Environmental Engineering

cc: C. Collins
A.T. Sawicki
E/607/88
copied: Bruce Mitchell
CHP/BT

along with periodic stack tests,

o A material balance scheme will be used, to assess the pollutant emissions from the building. The material balance scheme will involve the following:

1. beginning inventory of full containers
+ 2. deliveries received after the beginning inventory (veritiable by invoices)
- 3. quantity of material shipped off the premise (verifiable by invoices)
- 4. assume scrubber E's and deep well injection of water soluble material
- 5. ending inventory of full containers

Note: If gallon jugs are received by the case, then inventory by the case, as long as the inventory is appropriately accounted for

*

A problem that can occur with using only a stack test (for verification on usage), is that it will not indicate increases in the usage of VOC/solvents at the time that the increase occurs.

A CEM (of some type) would be the only means of providing reasonable assurance

HARRIS

FS-JRK-140-88

March 8, 1988

Mr. A. T. Sawicki
State of Florida
Department of Environmental Regulation
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803

SUBJECT: HARRIS SEMICONDUCTOR AIR PERMITS
Meeting of February 17, 1988

Dear Mr. Sawicki:

This letter is a follow-up to the meeting that was held in your offices on February 17, 1988 on the subject topic. We appreciate the Department's time and input on the issues pertinent to Harris' air permits.

During the course of the meeting the following information was requested by the DER:

1. A schedule for the co-generation project currently under review by Harris Semiconductor.

2. Generic industrial hygiene data for the semiconductor manufacturing areas.

3. Confirmation of the projected VOC emission level of 150 tons/year by a chemical inventory reconciliation.

Harris is currently compiling the above information. We shall forward the information to your attention as soon as it is available.

During the meeting Harris made the following recommendations:

1. That the existing 28 air emission source permits be consolidated into 11 permits on a per building basis.

2. Raising the total Harris Semiconductor VOC emission limit to 150 tons/year measured as propane.

3. Use of EPA method 25A to demonstrate compliance with source emissions.

4. Elimination of visible emission testing.

The following agreements were reached:

1. Harris would submit permit modifications on a by building basis starting with Building 54. The first permit modification request would be submitted in March. Future permit modifications would be submitted every two months.

2. Visible emission testing was deemed inappropriate, by today's standards, to demonstrate compliance with VOC emissions.

Finally, the DER requested Harris to resolve the issue of considering Harris Semiconductor and Harris Government Systems as separate or a single facility.

We appreciate your time and consideration in resolving these issues. We look forward to working with you and your staff. If you should have any questions, please contact me at (305) 724-7467.

Sincerely,

James R. Kolanek

J. R. Kolanek, Manager
Environmental Services

/pgc

cc: Bruce Mitchell

Copied. CHF/BT
Bruce Mitchell 3.14.88

.48
.59
.59
1.66

.4
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1.6

PER/HS/321
PER/HS/1794

furnace. The reason for this is that the difference in the FEGT and the flue gas temperature at the economizer outlet, and the number of variables affecting the temperature difference, would be too great to make a reasonably accurate correlation as required.

II. In consideration of comments from the Central Air Permitting Staff, the following changes will be made in the proposed permit:

1. The reference to "design" will be deleted from SC Nos. 1.c., 2.b., and 2.c., to emphasize the performance of the facility.

2. Compliance test method 25A will be deleted from SC No. 4 as it may not be appropriate for the testing of VOC emissions from this facility.

3. SC Nos. 7.a., 7.b. and 8, will be standardized to reflect the wording used in other permits issued by DER for similar projects.

III. In consideration of the comments from the Southwest District office received by telephone on September 8, the following changes will be made in the proposed permit.

1. The project description on the first page will mention the design heat input rate of the combustors.

2. A requirement for the notification to DER of the air pollution control equipment and combustor to be purchased will be added to SC No. 2.

3. A SC will be added stating that the facility shall be operated in a manner which would preclude objectionable odors.

4. A SC will be added stating that reasonable precautions shall be taken to prevent/control unconfined emissions.

5. SC No. 7 will include a specific reference to the Southwest District office.

6. A requirement will be added to SC No. 4 requiring the permittee to submit to DER the pertinent operating parameters of the control devices, which would indicate proper operation.

7. A requirement will be added to SC No. 4 for the prior approval of DER for the location of the stack sampling platform.

BEST AVAILABLE COPY

PA88-0?? #1?????? 0613
8-9-88

file copy

HARRIS

August 8, 1988

RECEIVED
AUG 10 1988
DER-BAQM

CHF, Bruce

8-11-88

Mr. Bruce Mitchell
State of Florida
Department of Environmental Regulation
Twin Tower Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

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Sincerely,
HARRIS SEMICONDUCTOR

James R. Kolanek

James R. Kolanek
Manager, Environmental Engineering

cc: C. Collins
A.T. Sawicki
E/607/88
copied: Bruce Mitchell 9-11-88 Rom
CHF/BT

PERMITTEE:
Harris Semiconductor
P. O. Box 883
Melbourne, Florida 32901

Permit Number: AC 05-104516
Expiration Date: June 30, 1986
County: Brevard
Latitude/Longitude: 28° 01' 20" N/
80° 36' 10" W
Project: Building 59 Acid Vapor
Exhaust Scrubber

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. 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:

For the permitting of hood type work stations for the manufacture of semiconductors in Building 59. A 40,000 dscfm fume scrubber manufactured by Beverly Pacific is installed to control acid vapors at the applicant's existing facility located on Palm Bay Road. The UTM coordinates are Zone 17-538.7 km East and 3100.9 km North.

The source shall be in accordance with the permit application and plans, documents, amendments, and drawings except as otherwise noted on pages 5 and 6, Specific Conditions.

Attachments are as follows:

1. Application to Construct Air Pollution Sources, DER Form 17-1.202(1), and Mr. James R. Kolanek's cover letter dated May 21, 1985.

2. Mr. James R. Kolanek's letter with Attachment dated June 12, 1985.

3. Mr. C. H. Fancy's letter dated June 21, 1985.

4. Mr. James R. Kolanek's letter with Attachments dated August 21, 1985.

PERMITTEE:
Harris Semiconductor

Permit Number: AC 05-104516
Expiration Date: June 30, 1986

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

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

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, unless specifically authorized by an order from the department.

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD).
( ) Compliance with New Source Performance Standards.

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

GENERAL CONDITIONS:

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. The potential acid vapor emissions from the work stations and scrubber system is 16.7 pounds per year.

2. The acid vapor exhaust scrubber must be on during the working hours.

3. The maximum operating hours allowed shall be 8 hours per day, 264 days per year, for a total of 2,112 hours per year.

4. A meter to measure the pressure drop shall be installed on the scrubber system.

5. Objectionable odors shall not be allowed off plant property.

PERMITTEE:
Harris Semiconductor

Permit Number: AC 05-104516
Expiration Date: June 30, 1986

SPECIFIC CONDITIONS:

6. The construction shall reasonably conform to the plans and schedule submitted in the application. If the applicant is unable to complete construction on schedule, he must notify the Department in writing 60 days prior to the expiration of the construction permit and submit a new schedule and request for an extension of the construction permit. (FAC Rule 17-4.09)
To obtain a permit to operate, the applicant must demonstrate compliance with the conditions of the construction permit and submit a complete application for an operating permit, including the application fee, along with compliance test results and Certificate of Completion, to the Department's St. Johns River District office 90 days prior to the expiration date of the construction permit. The permittee may continue to operate in compliance with all terms of the construction permit until its expiration date. Operation beyond the construction permit expiration date requires a valid permit to operate. (FAC Rules 17-4.22 and 17-4.23)
If the construction permit expires prior to the applicant requesting an extension or obtaining a permit to operate, then all activities at the project must cease and the applicant must apply for a new permit to construct which can take up to 90 days to process a complete application. (FAC Rule 17-4.10)

Issued this_____day of_____, 19__.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____
VICTORIA J. TSCHINKEL, Secretary

____ pages attached.

PERMITTEE:
Harris Semiconductor
P. O. Box 883
Melbourne, Florida 32901

Permit Number: AC 05-104515
Expiration Date: June 30, 1986
County: Brevard
Latitude/Longitude: 28° 01' 20" N/
80° 36' 10" W
Project: Building 59 VOC/Solvent
Vapor Exhaust Scrubber

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. 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:

For the permitting of hood type work stations for the manufacture of semiconductors in Building 59. A 20,000 dscfm fume scrubber manufactured by Beverly Pacific is installed to control VOC/solvent vapors at the permittee's existing facility located on Palm Bay Road. The UTM coordinates are Zone 17-538.7 km East and 3100.9 km North.

The source shall be in accordance with the permit application and plans, documents, amendments, and drawings except as otherwise noted on pages 5-7, Specific Conditions.

Attachments are as follows:

1. Application to Construct Air Pollution Sources, DER Form 17-1.202(1), and Mr. James R. Kolanek's cover letter dated May 21, 1985.
2. Mr. James R. Kolanek's letter with Attachment dated June 12, 1985.
3. Mr. C. H. Fancy's letter dated June 21, 1985.
4. Mr. James R. Kolanek's letter with Attachments dated August 21, 1985.
5. Mr. Dennis R. Erdley's letter dated November 14, 1985.
6. OGC Case No. 85-1286-95 filed by Ms. B. J. Owens, Assistant General Counsel-DER.
7. Mr. Dennis R. Erdley's letter dated December 12, 1985.
8. Mr. Dennis R. Erdley's letter dated December 18, 1985.

PERMITTEE:
Harris Semiconductor

Permit Number: AC 05-104515
Expiration Date: June 30, 1986

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

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

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, unless specifically authorized by an order from the department.

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD).
( ) Compliance with New Source Performance Standards.

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

GENERAL CONDITIONS:

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. The maximum allowable VOC (volatile organic compounds)/solvent emissions from the work stations and scrubber system shall be 3.8 pounds per year.

2. The VOC/solvent vapor exhaust scrubber must be on during the working hours.

3. The maximum operating hours allowed shall be 8 hours per day, 264 days per year, for a total of 2,112 hours per year.

PERMITTEE:
Harris Semiconductor

Permit Number: AC 05-104515
Expiration Date: June 30, 1986

SPECIFIC CONDITIONS:

4. An inspection and maintenance plan shall be submitted to the DER's St. Johns River District office as part of the operating permit application. The plan shall include provisions for the prevention and correction of VOC/solvent losses from leaks and equipment malfunction and a record system on the amount and types of VOC/solvents purchased and relcaimed.

5. Compliance with the VOC/solvent emissions limit for the working stations and the scrubber system shall be determined through the use of a material balance of the VOC/solvents purchased and reclaimed.

6. A meter to measure the pressure drop shall be installed on the scrubber system.

7. Objectionable odors shall not be allowed off plant property.

8. Annual reports, kept by month, shall be due 15 days after the anniversary date of the operating permit and are to be submitted to the DER's St. Johns River District office. The annual reports are to contain the amounts of all VOC/solvents by chemical, purchased and reclaimed.

9. The construction shall reasonably conform to the plans and schedule submitted in the application. If the applicant is unable to complete construction on schedule, he must notify the Department in writing 60 days prior to the expiration of the construction permit and submit a new schedule and request for an extension of the construction permit. (FAC Rule 17-4.09)
To obtain a permit to operate, the applicant must demonstrate compliance with the conditions of the construction permit and submit a complete application for an operating permit, including the application fee, along with compliance test results and Certificate of Completion, to the Department's St. Johns River District office 90 days prior to the expiration date of the construction permit. The permittee may continue to operate in compliance with all terms of the construction permit until its expiration date. Operation beyond the construction permit expiration date requires a valid permit to operate. (FAC Rules 17-4.22 and 17-4.23)
If the construction permit expires prior to the applicant requesting an extension or obtaining a permit to operate, then all activities at the project must cease and the applicant must apply for a new permit to construct which can take up to 90 days to process a complete application. (FAC Rule 17-4.10)

PERMITEE:
Harris Semiconductor

Permit Number: AC 05-104515
Expiration Number: June 30, 1986

SPECIFIC CONDITIONS:

Issued this_____day of_____,
19__.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____
VICTORIA J. TSCHINKEL, Secretary

____ pages attached.

Bruce -

You were sent copies of attachments 1, 2, 3 & 4 with your cc of Harris' letter to Don Sawicki 7/1/84

The response to the 6/6 incompleteness letter only included attachment 4.

Do I need to make an xtra copy of attachments 1, 2 & 3 for the file?

Patty

6-30-88
7220052414

HARRIS

file copy

June 29, 1988

Mr. A.T. Sawicki, P.E.
St. Johns River District
Florida Department of Environmental Regulation
3319 Maquire Blvd. Suite 232
Orlando, Florida 32803

Subject: Harris Semiconductor - Consolidated Air Permits

Dear Mr. Sawicki:

Enclosed please find the following information and attachemnts:

Attachment I - Industrial Hygiene Information By Building

Attachment II - Air Dispersion Model

Attachment III - Cogeneration Schedule

Attachment IV - 1987 Solvent Material Balance

The enclosed information is the data that was previously requested by the DER at our meeting in Orlando. As a point of information, Harris is currently evaluating a proposal from a consultant on the Cogeneration Project. The consultant is currently obtaining additional information as to the feasibility of burning VOC/solvent emissions in a gas turbine. We shall kept you advised of any further developments on this subject.

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

Sincerely,
HARRIS SEMICONDUCTOR

James R. Kolanek

James R. Kolanek
Manager, Environmental Services

c.c. ~~Bruce Mitchell,~~ DER Tallahassee
CI+F/BT

HARRIS SEMICONDUCTOR

ATTACHMENT 1

INDUSTRIAL HYGIENE DATA

BY BUILDING

IH AIR SAMPLE RESULT AVERAGES
FOR BUILDINGS OTHER THAN 51 OR 54 AS OF 04/01/88

CHEMICAL	AVE CONC	MAX CONC	MIN CONC	SAMPLENO COUNT
1,1,1 TRICHLOROETHANE	.000	.000	.000	1
ACETIC ACID	.000	.000	.000	1
ACETONE	.000	.000	.000	8
CELLOSOLVE	.000	.000	.000	4
CELLOSOLVE ACETATE	.000	.000	.000	2
ETHYL BENZENE	.000	.000	.000	4
HCL	10.250	10.600	9.900	2
HYDROFLUORIC ACID	.800	1.600	.000	2
IPA	.000	.000	.000	8
ISOPROPYL ACETATE	.000	.000	.000	3
N-BUTYL ACETATE	.000	.000	.000	5
PHOSPHORIC	.000	.000	.000	1
SULFURIC ACID	.000	.000	.000	2
XYLENE	.000	.000	.000	6

ALL SOLVENT RESULTS ARE IN PPM
ALL ACID RESULTS ARE IN MG/M3

IH AIR SAMPLE RESULT AVERAGES
FOR BUILDING 51 AS OF 04/01/88

CHEMICAL	AVE CONC	MAX CONC	MIN CONC	SAMPLENO COUNT
CELLOSOLVE	.000	.000	.000	1
CELLOSOLVE ACETATE	.000	.000	.000	1
N-BUTYL ACETATE	.000	.000	.000	1
XYLENE	6.597	6.597	6.597	1

ALL SOLVENT RESULTS ARE IN PPM
ALL ACID RESULTS ARE IN MG/M3

IH AIR SAMPLE RESULT AVERAGES
FOR BUILDING 54 AS OF 04/01/88

CHEMICAL	AVE CONC	MAX CONC	MIN CONC	SAMPLENO COUNT
1,1,1 TRICHLOROETHANE	21.250	82.000	1.000	4
ACETONE	.914	8.000	.000	125
CELLOSOLVE	.133	1.000	.000	15
CELLOSOLVE ACETATE	.597	10.924	.000	30
ETHYL BENZENE	.332	3.521	.000	36
HCL	.046	.110	.010	22
HYDROFLUORIC ACID	2.082	49.700	.010	30
IPA	.552	3.000	.000	133
ISOPROPYL ACETATE	.000	.000	.000	36
N-BUTYL ACETATE	.343	1.000	.000	49
SULFURIC ACID	.010	.010	.010	1
XYLENE	2.300	91.353	.000	59

ALL SOLVENT RESULTS ARE IN PPM
ALL ACID RESULTS ARE IN MG/M3

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 51

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
CK3524	51	OVM	CELLOSOLVE	.000	ND	PPM
CK3524	51	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CK3524	51	OVM	N-BUTYL ACETATE	.000	ND	PPM
CK3524	51	OVM	XYLENE	6.597		PPM

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
CR6316	54	OVM	1,1,1 TRICHLOROETHANE	.193		MG
CR6288	54	OVM	1,1,1 TRICHLOROETHANE	.000	ND	
CR6243	54	OVM	1,1,1 TRICHLOROETHANE	.000	ND	
CR6184	54	OVM	1,1,1 TRICHLOROETHANE	.406		MG
CR5382	54	OVM	1,1,1 TRICHLOROETHANE	.000	ND	
CR5300	54	OVM	1,1,1 TRICHLOROETHANE	.015	<	MG
CR5283	54	OVM	1,1,1 TRICHLOROETHANE	.000	ND	
CR5263	54	OVM	1,1,1 TRICHLOROETHANE	.000	ND	
CR5201	54	OVM	1,1,1 TRICHLOROETHANE	.017		MG
CR5180	54	OVM	1,1,1 TRICHLOROETHANE	.032		MG
CQ9053	54	OVM	1,1,1 TRICHLOROETHANE	.037		MG
CK5481	54	OVM	1,1,1 TRICHLOROETHANE	.164		MG
CK5455	54	OVM	1,1,1 TRICHLOROETHANE	.029		MG
CK5452	54	OVM	1,1,1 TRICHLOROETHANE	.049		MG
CK5440	54	OVM	1,1,1 TRICHLOROETHANE	2.415		MG
CK5429	54	OVM	1,1,1 TRICHLOROETHANE	.046		MG
CK5380	54	OVM	1,1,1 TRICHLOROETHANE	.059		MG
8712013	54	CHAR	1,1,1 TRICHLOROETHANE	82.000	BR	PPM
8711034	54	CHAR	1,1,1 TRICHLOROETHANE	1.000	<	PPM
8711024	54	CHAR	1,1,1 TRICHLOROETHANE	1.000	<	PPM
8711004	54	CHAR	1,1,1 TRICHLOROETHANE	1.000	<	PPM
8712042	54	ORBO	ACETIC ACID	.000	ND	
8712037	54	ORBO	ACETIC ACID	.000	ND	
8711016	54	ORBO	ACETIC ACID	.000	ND	
8711015	54	ORBO	ACETIC ACID	.000	ND	
8711014	54	ORBO	ACETIC ACID	.000	ND	
CR6316	54	OVM	ACETONE	.000	ND	PPM
CR6288	54	OVM	ACETONE	.000	ND	PPM
CR6243	54	OVM	ACETONE	.000	ND	PPM
CR6184	54	OVM	ACETONE	.000	ND	PPM
CR5383	54	OVM	ACETONE	.000	ND	PPM
CR5382	54	OVM	ACETONE	.000	ND	PPM
CR5375	54	OVM	ACETONE	2.837		PPM
CR5366	54	OVM	ACETONE	.396	<	PPM
CR5363	54	OVM	ACETONE	.493	<	PPM
CR5357	54	OVM	ACETONE	.787		PPM
CR5341	54	OVM	ACETONE	.000	ND	PPM
CR5316	54	OVM	ACETONE	.577		PPM
CR5315	54	OVM	ACETONE	.476		PPM
CR5311	54	OVM	ACETONE	.617		PPM
CR5300	54	OVM	ACETONE	.455		PPM
CR5297	54	OVM	ACETONE	.494		PPM
CR5290	54	OVM	ACETONE	.000	ND	PPM
CR5287	54	OVM	ACETONE	.366	<	PPM
CR5283	54	OVM	ACETONE	3.429		PPM
CR5277	54	OVM	ACETONE	.000	ND	PPM
CR5263	54	OVM	ACETONE	.000	ND	PPM
CR5261	54	OVM	ACETONE	.366		PPM
CR5256	54	OVM	ACETONE	.396	<	PPM
CR5201	54	OVM	ACETONE	1.371		PPM
CR5195	54	OVM	ACETONE	.537		PPM

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
CR5182	54	OVM	ACETONE	.713		PPM
CR5180	54	OVM	ACETONE	.000	ND	PPM
CR5160	54	OVM	ACETONE	.000	ND	PPM
CR5141	54	OVM	ACETONE	.384		PPM
CR5137	54	OVM	ACETONE	.396	<	PPM
CR5126	54	OVM	ACETONE	.000	ND	PPM
CR5114	54	OVM	ACETONE	.970		PPM
CQ9053	54	OVM	ACETONE	.000	ND	PPM
CK5551	54	OVM	ACETONE	.348	<	PPM
CK5502	54	OVM	ACETONE	.000	ND	PPM
CK5497	54	OVM	ACETONE	.313		PPM
CK5481	54	OVM	ACETONE	7.271		PPM
CK5455	54	OVM	ACETONE	.000	ND	PPM
CK5452	54	OVM	ACETONE	.000	ND	PPM
CK5447	54	OVM	ACETONE	.261	<	PPM
CK5440	54	OVM	ACETONE	1.182		PPM
CK5429	54	OVM	ACETONE	.000	ND	PPM
CK5401	54	OVM	ACETONE	.000	ND	PPM
CK5390	54	OVM	ACETONE	.000	ND	PPM
CK5380	54	OVM	ACETONE	.624		PPM
CK5363	54	OVM	ACETONE	.348	<	PPM
CK5354	54	OVM	ACETONE	.348	<	PPM
CK5327	54	OVM	ACETONE	.340	<	PPM
CK5271	54	OVM	ACETONE	.348	<	PPM
CK3720	54	OVM	ACETONE	.574		PPM
CK3701	54	OVM	ACETONE	.742		PPM
CK3695	54	OVM	ACETONE	1.208		PPM
CK3650	54	OVM	ACETONE	.000	ND	PPM
CK3646	54	OVM	ACETONE	.423		PPM
CK3603	54	OVM	ACETONE	.000	ND	PPM
CK3599	54	OVM	ACETONE	.509		PPM
CK3593	54	OVM	ACETONE	7.345		PPM
CK3539	54	OVM	ACETONE	.000	ND	PPM
CJ2598	54	OVM	ACETONE	2.282		PPM
CJ2476	54	OVM	ACETONE	.000	ND	PPM
CJ2442	54	OVM	ACETONE	1.898		PPM
CJ2424	54	OVM	ACETONE	1.438		PPM
CJ2418	54	OVM	ACETONE	1.518		PPM
CJ2416	54	OVM	ACETONE	1.782		PPM
CJ2359	54	OVM	ACETONE	.000	ND	PPM
CJ2355	54	OVM	ACETONE	.000	ND	PPM
CJ2339	54	OVM	ACETONE	1.115		PPM
CJ2331	54	OVM	ACETONE	1.487		PPM
CJ2303	54	OVM	ACETONE	1.487		PPM
CJ2290	54	OVM	ACETONE	.000	ND	PPM
CJ2285	54	OVM	ACETONE	.000	ND	PPM
CJ2176	54		ACETONE	.037		MG
CJ2151	54	OVM	ACETONE	.000	ND	PPM
CJ2141	54	OVM	ACETONE	.954		PPM
CJ2093	54	OVM	ACETONE	.000	ND	PPM
8712025	54	CHAR	ACETONE	1.000	<	PPM

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8712024	54	CHAR	ACETONE	1.000	<	PPM
8712019	54	CHAR	ACETONE	1.000	<	PPM
8712018	54	CHAR	ACETONE	1.000	<	PPM
8712017	54	CHAR	ACETONE	1.000	<	PPM
8712016	54	CHAR	ACETONE	1.000	<	PPM
8712015	54	CHAR	ACETONE	1.000	<	PPM
8712014	54	CHAR	ACETONE	1.000		PPM
8712013	54	CHAR	ACETONE	8.000	BR	PPM
8712011	54	CHAR	ACETONE	1.000	<	PPM
8712005	54	CHAR	ACETONE	1.000	<	PPM
8712002	54	CHAR	ACETONE	2.000		PPM
8711041	54	CHAR	ACETONE	1.000	<	PPM
8711040	54	CHAR	ACETONE	1.000	<	PPM
8711039	54	CHAR	ACETONE	1.000	<	PPM
8711038	54	CHAR	ACETONE	1.000	<	PPM
8711037	54	CHAR	ACETONE	1.000	<	PPM
8711036	54	CHAR	ACETONE	1.000		PPM
8711035	54	CHAR	ACETONE	1.000	<	PPM
8711034	54	CHAR	ACETONE	4.000		PPM
8711033	54	CHAR	ACETONE	1.000	<	PPM
8711032	54	CHAR	ACETONE	1.000	<	PPM
8711025	54	CHAR	ACETONE	1.000	<	PPM
8711024	54	CHAR	ACETONE	1.000		PPM
8711023	54	CHAR	ACETONE	1.000	<	PPM
8711022	54	CHAR	ACETONE	1.000	<	PPM
8711021	54	CHAR	ACETONE	1.000		PPM
8711020	54	CHAR	ACETONE	1.000		PPM
8711019	54	CHAR	ACETONE	1.000	<	PPM
8711012	54	CHAR	ACETONE	1.000		PPM
8711011	54	CHAR	ACETONE	1.000	<	PPM
8711010	54	CHAR	ACETONE	1.000	<	PPM
8711009	54	CHAR	ACETONE	1.000		PPM
8711008	54	CHAR	ACETONE	1.000	<	PPM
8711006	54	CHAR	ACETONE	1.000		PPM
8711005	54	CHAR	ACETONE	1.000	<	PPM
8711004	54	CHAR	ACETONE	1.000		PPM
8711003	54	CHAR	ACETONE	1.000	<	PPM
8711002	54	CHAR	ACETONE	1.000	<	PPM
8709045	54	CHAR	ACETONE	1.000	<	PPM
8709044	54	CHAR	ACETONE	1.000	<	PPM
8709041	54	CHAR	ACETONE	1.000	<	PPM
8709030	54	CHAR	ACETONE	1.000	<	PPM
8709029	54	CHAR	ACETONE	1.000	<	PPM
8709026	54	CHAR	ACETONE	1.000	<	PPM
8709018	54	CHAR	ACETONE	1.000		PPM
8709017	54	CHAR	ACETONE	1.000	<	PPM
8709016	54	CHAR	ACETONE	1.000		PPM
8709010	54	CHAR	ACETONE	1.000	<	PPM
8709006	54	CHAR	ACETONE	1.000	<	PPM
8709003	54	CHAR	ACETONE	1.000	<	PPM
CK5461	54	OVM	CELLOSOLVE	.000	ND	PPM

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
CJ2598	54	OVM	CELLOSOLVE	.000	ND	PPM
CJ2561	54	OVM	CELLOSOLVE	.000	ND	PPM
CJ2485	54	OVM	CELLOSOLVE	.000	ND	PPM
CJ2442	54	OVM	CELLOSOLVE	.000	ND	PPM
CJ2417	54	OVM	CELLOSOLVE	.000	ND	PPM
CJ2321	54	OVM	CELLOSOLVE	.000	ND	PPM
CJ2286	54	OVM	CELLOSOLVE	.000	ND	PPM
CJ2263	54	OVM	CELLOSOLVE	.000	ND	PPM
CJ2256	54	OVM	CELLOSOLVE	.000	ND	PPM
CJ2205	54	OVM	CELLOSOLVE	.000	ND	PPM
CJ2204	54	OVM	CELLOSOLVE	.000	ND	PPM
CJ2176	54		CELLOSOLVE	.000	ND	
CJ2141	54	OVM	CELLOSOLVE	.000	ND	PPM
8711017	54	CHAR	CELLOSOLVE	1.000	<	PPM
8711013	54	CHAR	CELLOSOLVE	1.000	<	PPM
8709054	54	CHAR	CELLOSOLVE	.000	ND	
8709045	54	CHAR	CELLOSOLVE	.000	ND	
8709043	54	CHAR	CELLOSOLVE	.000	ND	
8709042	54	CHAR	CELLOSOLVE	.000	ND	
8709028	54	CHAR	CELLOSOLVE	.000	ND	
8709027	54	CHAR	CELLOSOLVE	.000	ND	
8709019	54	CHAR	CELLOSOLVE	.000	ND	
8709012	54	CHAR	CELLOSOLVE	.000	ND	
8709011	54	CHAR	CELLOSOLVE	.000	ND	
8709005	54	CHAR	CELLOSOLVE	.000	ND	
8709004	54	CHAR	CELLOSOLVE	.000	ND	
CR6316	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CR6288	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CR6243	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CR6184	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CR5382	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CR5375	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CR5290	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CR5283	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CR5277	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CR5263	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CR5261	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CR5180	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CR5126	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CQ9053	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CK5363	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CK5274	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CK3720	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CK3650	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CK3603	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CK3599	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CK3593	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CK3539	54	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CJ2263	54	OVM	CELLOSOLVE ACETATE	10.924		PPM
8712017	54	CHAR	CELLOSOLVE ACETATE	.000	ND	
8712016	54	CHAR	CELLOSOLVE ACETATE	.000	ND	

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8712002	54	CHAR	CELLOSOLVE ACETATE	.000	ND	
8711037	54	CHAR	CELLOSOLVE ACETATE	1.000	<	PPM
8711021	54	CHAR	CELLOSOLVE ACETATE	1.000	<	PPM
8711018	54	CHAR	CELLOSOLVE ACETATE	1.000	<	PPM
8711017	54	CHAR	CELLOSOLVE ACETATE	1.000	<	PPM
8711013	54	CHAR	CELLOSOLVE ACETATE	1.000	<	PPM
8711008	54	CHAR	CELLOSOLVE ACETATE	1.000	<	PPM
8711007	54	CHAR	CELLOSOLVE ACETATE	1.000	<	PPM
CR6316	54	OVM	ETHYL BENZENE	.000	ND	PPM
CR6288	54	OVM	ETHYL BENZENE	.000	ND	PPM
CR6184	54	OVM	ETHYL BENZENE	.000	ND	PPM
CR5382	54	OVM	ETHYL BENZENE	.000	ND	PPM
CR5375	54	OVM	ETHYL BENZENE	.026		PPM
CR5297	54	OVM	ETHYL BENZENE	.077	<	PPM
CR5283	54	OVM	ETHYL BENZENE	.000	ND	PPM
CR5261	54	OVM	ETHYL BENZENE	3.521		PPM
CR5180	54	OVM	ETHYL BENZENE	.000	ND	PPM
CR5160	54	OVM	ETHYL BENZENE	.000	ND	PPM
CR5126	54	OVM	ETHYL BENZENE	.000	ND	PPM
CQ9053	54	OVM	ETHYL BENZENE	.000	ND	PPM
CK5461	54	OVM	ETHYL BENZENE	.073	<	PPM
CK5390	54	OVM	ETHYL BENZENE	.000	ND	PPM
CK3720	54	OVM	ETHYL BENZENE	.000	ND	PPM
CK3695	54	OVM	ETHYL BENZENE	.000	ND	PPM
CK3650	54	OVM	ETHYL BENZENE	.000	ND	PPM
CK3599	54	OVM	ETHYL BENZENE	.089	<	PPM
CK3539	54	OVM	ETHYL BENZENE	.000	ND	PPM
CJ2561	54	OVM	ETHYL BENZENE	.000	ND	PPM
CJ2485	54	OVM	ETHYL BENZENE	.000	ND	PPM
CJ2417	54	OVM	ETHYL BENZENE	.000	ND	PPM
CJ2364	54	OVM	ETHYL BENZENE	.000		PPM
CJ2321	54	OVM	ETHYL BENZENE	.000	ND	PPM
CJ2286	54	OVM	ETHYL BENZENE	.000	ND	PPM
CJ2263	54	OVM	ETHYL BENZENE	.161	<	PPM
CJ2256	54	OVM	ETHYL BENZENE	.000	ND	PPM
CJ2204	54	OVM	ETHYL BENZENE	.000	ND	PPM
8712018	54	CHAR	ETHYL BENZENE	.000	ND	
8711038	54	CHAR	ETHYL BENZENE	1.000	<	PPM
8711037	54	CHAR	ETHYL BENZENE	1.000	<	PPM
8711009	54	CHAR	ETHYL BENZENE	1.000	<	PPM
8711008	54	CHAR	ETHYL BENZENE	1.000	<	PPM
8709054	54	CHAR	ETHYL BENZENE	.000	ND	
8709045	54	CHAR	ETHYL BENZENE	.000	ND	
8709043	54	CHAR	ETHYL BENZENE	.000	ND	
8709042	54	CHAR	ETHYL BENZENE	.000	ND	
8709030	54	CHAR	ETHYL BENZENE	.000	ND	
8709013	54	CHAR	ETHYL BENZENE	1.000	<	PPM
8709012	54	CHAR	ETHYL BENZENE	1.000	<	PPM
8709011	54	CHAR	ETHYL BENZENE	.000	ND	
8709005	54	CHAR	ETHYL BENZENE	1.000	<	PPM
8709004	54	CHAR	ETHYL BENZENE	1.000	<	PPM

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8712042	54	ORBO	HCL	.040	<	MG/M3
8712041	54	ORBO	HCL	.000	ND	
8712040	54	ORBO	HCL	.040	<	MG/M3
8712039	54	ORBO	HCL	.040	<	MG/M3
8712038	54	ORBO	HCL	.060	<	MG/M3
8712037	54	ORBO	HCL	.020		MG/M3
8712036	54	ORBO	HCL	.060	<	MG/M3
8712035	54	ORBO	HCL	.050	<	MG/M3
8712034	54	ORBO	HCL	.050	<	MG/M3
8712033	54	ORBO	HCL	.040	<	MG/M3
8711016	54	ORBO	HCL	.000	ND	
8711015	54	ORBO	HCL	.010		MG/M3
8711014	54	ORBO	HCL	.010		MG/M3
8709057	54	ORBO	HCL	.070	<	MG/M3
8709056	54	ORBO	HCL	.030	<	MG/M3
8709040	54	ORBO	HCL	.090	<	MG/M3
8709039	54	ORBO	HCL	.110	<	MG/M3
8709038	54	ORBO	HCL	.060	<	MG/M3
8709037	54	ORBO	HCL	.020	<	MG/M3
8709036	54	ORBO	HCL	.000	ND	
8709035	54	ORBO	HCL	.100	<	MG/M3
8709034	54	ORBO	HCL	.030	<	MG/M3
8709033	54	ORBO	HCL	.050	<	MG/M3
8709032	54	ORBO	HCL	.020		MG/M3
8709031	54	ORBO	HCL	.020		MG/M3
8712042	54	ORBO	HYDROFLUORIC ACID	.050	<	MG/M3
8712041	54	ORBO	HYDROFLUORIC ACID	.040	<	MG/M3
8712040	54	ORBO	HYDROFLUORIC ACID	.040	<	MG/M3
8712039	54	ORBO	HYDROFLUORIC ACID	.050	<	MG/M3
8712038	54	ORBO	HYDROFLUORIC ACID	.050	<	MG/M3
8712037	54	ORBO	HYDROFLUORIC ACID	.010		MG/M3
8712036	54	ORBO	HYDROFLUORIC ACID	.015	<	MG/M3
8712035	54	ORBO	HYDROFLUORIC ACID	.010		MG/M3
8712034	54	ORBO	HYDROFLUORIC ACID	.040	<	MG/M3
8712033	54	ORBO	HYDROFLUORIC ACID	.040	<	MG/M3
8711016	54	ORBO	HYDROFLUORIC ACID	.120	<	MG/M3
8711015	54	ORBO	HYDROFLUORIC ACID	.020	<	MG/M3
8711014	54	ORBO	HYDROFLUORIC ACID	.020	<	MG/M3
8709057	54	ORBO	HYDROFLUORIC ACID	.010	<	MG/M3
8709056	54	ORBO	HYDROFLUORIC ACID	.040	<	MG/M3
8709036	54	ORBO	HYDROFLUORIC ACID	.000	ND	
8709035	54	ORBO	HYDROFLUORIC ACID	.060	<	MG/M3
8709034	54	ORBO	HYDROFLUORIC ACID	.050	<	MG/M3
8709033	54	ORBO	HYDROFLUORIC ACID	.050	<	MG/M3
8709032	54	ORBO	HYDROFLUORIC ACID	.000	ND	
8709031	54	ORBO	HYDROFLUORIC ACID	.000	ND	
8708016	54	ORBO	HYDROFLUORIC ACID	5.000	<	MG/M3
8708015	54	ORBO	HYDROFLUORIC ACID	5.000	<	MG/M3
8708012	54	ORBO	HYDROFLUORIC ACID	.930		MG/M3
8708011	54	ORBO	HYDROFLUORIC ACID	.100		MG/M3
8708010	54	ORBO	HYDROFLUORIC ACID	.050		MG/M3

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8708009	54	ORBO	HYDROFLUORIC ACID	.070		MG/M3
8708006	54	ORBO	HYDROFLUORIC ACID	.250		MG/M3
8708005	54	ORBO	HYDROFLUORIC ACID	.060		MG/M3
8708004	54	ORBO	HYDROFLUORIC ACID	.220		MG/M3
8708003	54	ORBO	HYDROFLUORIC ACID	.140		MG/M3
8708002	54	ORBO	HYDROFLUORIC ACID	49.700		MG/M3
8708001	54	ORBO	HYDROFLUORIC ACID	.230		MG/M3
CR6316	54	OVM	IPA	.000	ND	PPM
CR6288	54	OVM	IPA	.000	ND	PPM
CR6243	54	OVM	IPA	.000	ND	PPM
CR6184	54	OVM	IPA	.000	ND	PPM
CR5383	54	OVM	IPA	.000	ND	PPM
CR5382	54	OVM	IPA	.000	ND	PPM
CR5375	54	OVM	IPA	.235	<	PPM
CR5366	54	OVM	IPA	.254	<	PPM
CR5363	54	OVM	IPA	.317	<	PPM
CR5357	54	OVM	IPA	.235	<	PPM
CR5341	54	OVM	IPA	.000	ND	PPM
CR5316	54	OVM	IPA	.239	<	PPM
CR5315	54	OVM	IPA	.235	<	PPM
CR5311	54	OVM	IPA	.220	<	PPM
CR5300	54	OVM	IPA	.254	<	PPM
CR5297	54	OVM	IPA	.235	<	PPM
CR5290	54	OVM	IPA	.000	ND	PPM
CR5287	54	OVM	IPA	.235	<	PPM
CR5283	54	OVM	IPA	.000	ND	PPM
CR5277	54	OVM	IPA	.000	ND	PPM
CR5263	54	OVM	IPA	.000	ND	PPM
CR5261	54	OVM	IPA	.235	<	PPM
CR5256	54	OVM	IPA	.254	<	PPM
CR5201	54	OVM	IPA	.220	<	PPM
CR5195	54	OVM	IPA	.215	<	PPM
CR5182	54	OVM	IPA	.254	<	PPM
CR5180	54	OVM	IPA	.000	ND	PPM
CR5160	54	OVM	IPA	.000	ND	PPM
CR5141	54	OVM	IPA	.235	<	PPM
CR5137	54	OVM	IPA	.254	<	PPM
CR5126	54	OVM	IPA	.000	ND	PPM
CR5114	54	OVM	IPA	.254	<	PPM
CQ9053	54	OVM	IPA	.000	ND	PPM
CK5551	54	OVM	IPA	.223	<	PPM
CK5502	54	OVM	IPA	.223	<	PPM
CK5497	54	OVM	IPA	.223	<	PPM
CK5481	54	OVM	IPA	.000	ND	PPM
CK5455	54	OVM	IPA	.000	ND	PPM
CK5452	54	OVM	IPA	.539		PPM
CK5447	54	OVM	IPA	.223	<	PPM
CK5440	54	OVM	IPA	.223	<	PPM
CK5429	54	OVM	IPA	.000	ND	PPM
CK5401	54	OVM	IPA	.000	ND	PPM
CK5390	54	OVM	IPA	.223	<	PPM

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
CK5380	54	OVM	IPA	2.912		PPM
CK5363	54	OVM	IPA	.223	<	PPM
CK5354	54	OVM	IPA	.223	<	PPM
CK5327	54	OVM	IPA	.218	<	PPM
CK5274	54	OVM	IPA	.223	<	PPM
CK5271	54	OVM	IPA	.223	<	PPM
CK3720	54	OVM	IPA	.254	<	PPM
CK3701	54	OVM	IPA	.272	<	PPM
CK3695	54	OVM	IPA	.272	<	PPM
CK3650	54	OVM	IPA	.000	ND	PPM
CK3646	54	OVM	IPA	.259	<	PPM
CK3603	54	OVM	IPA	.196	<	PPM
CK3599	54	OVM	IPA	.272	<	PPM
CK3593	54	OVM	IPA	.248	<	PPM
CK3539	54	OVM	IPA	.000	ND	PPM
CJ2600	54	OVM	IPA	.000	ND	PPM
CJ2598	54	OVM	IPA	.000	ND	PPM
CJ2561	54	OVM	IPA	.000	ND	PPM
CJ2485	54	OVM	IPA	.000	ND	PPM
CJ2476	54	OVM	IPA	.000	ND	PPM
CJ2442	54	OVM	IPA	.246		PPM
CJ2424	54	OVM	IPA	.468		PPM
CJ2418	54	OVM	IPA	.265		PPM
CJ2416	54	OVM	IPA	.439		PPM
CJ2359	54	OVM	IPA	.000	ND	PPM
CJ2355	54	OVM	IPA	.000	ND	PPM
CJ2339	54	OVM	IPA	1.034		PPM
CJ2331	54	OVM	IPA	1.670		PPM
CJ2321	54	OVM	IPA	.000	ND	PPM
CJ2303	54	OVM	IPA	.239		PPM
CJ2290	54	OVM	IPA	.000	ND	PPM
CJ2285	54	OVM	IPA	.000	ND	PPM
CJ2176	54		IPA	.015		MG
CJ2151	54	OVM	IPA	.000	ND	PPM
CJ2141	54	OVM	IPA	.000	ND	PPM
CJ2093	54	OVM	IPA	.000	ND	PPM
8712025	54	CHAR	IPA	1.000	<	PPM
8712024	54	CHAR	IPA	1.000	<	PPM
8712019	54	CHAR	IPA	.000	ND	
8712018	54	CHAR	IPA	1.000	<	PPM
8712017	54	CHAR	IPA	1.000	<	PPM
8712016	54	CHAR	IPA	1.000	<	PPM
8712015	54	CHAR	IPA	1.000	<	PPM
8712014	54	CHAR	IPA	1.000	<	PPM
8712013	54	CHAR	IPA	.000	ND	
8712011	54	CHAR	IPA	1.000	<	PPM
8712005	54	CHAR	IPA	1.000	<	PPM
8712002	54	CHAR	IPA	1.000	<	PPM
8711041	54	CHAR	IPA	1.000	<	PPM
8711040	54	CHAR	IPA	1.000	<	PPM
8711039	54	CHAR	IPA	1.000	<	PPM

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8711038	54	CHAR	IPA	1.000	<	PPM
8711037	54	CHAR	IPA	1.000	<	PPM
8711036	54	CHAR	IPA	1.000	<	PPM
8711035	54	CHAR	IPA	1.000	<	PPM
8711034	54	CHAR	IPA	1.000	<	PPM
8711033	54	CHAR	IPA	1.000	<	PPM
8711032	54	CHAR	IPA	1.000	<	PPM
8711025	54	CHAR	IPA	1.000	<	PPM
8711024	54	CHAR	IPA	1.000	<	PPM
8711023	54	CHAR	IPA	2.000		PPM
8711022	54	CHAR	IPA	1.000	<	PPM
8711021	54	CHAR	IPA	1.000	<	PPM
8711020	54	CHAR	IPA	1.000	<	PPM
8711019	54	CHAR	IPA	1.000	<	PPM
8711018	54	CHAR	IPA	1.000	<	PPM
8711017	54	CHAR	IPA	1.000	<	PPM
8711013	54	CHAR	IPA	1.000	<	PPM
8711012	54	CHAR	IPA	1.000	<	PPM
8711011	54	CHAR	IPA	1.000	<	PPM
8711010	54	CHAR	IPA	1.000	<	PPM
8711009	54	CHAR	IPA	1.000	<	PPM
8711008	54	CHAR	IPA	1.000	<	PPM
8711006	54	CHAR	IPA	1.000	<	PPM
8711005	54	CHAR	IPA	1.000	<	PPM
8711004	54	CHAR	IPA	1.000	<	PPM
8711003	54	CHAR	IPA	1.000	<	PPM
8711002	54	CHAR	IPA	1.000	<	PPM
8709054	54	CHAR	IPA	1.000		PPM
8709045	54	CHAR	IPA	1.000		PPM
8709044	54	CHAR	IPA	1.000		PPM
8709041	54	CHAR	IPA	1.000		PPM
8709030	54	CHAR	IPA	1.000		PPM
8709029	54	CHAR	IPA	1.000	<	PPM
8709026	54	CHAR	IPA	1.000		PPM
8709019	54	CHAR	IPA	3.000		PPM
8709018	54	CHAR	IPA	1.000		PPM
8709017	54	CHAR	IPA	1.000		PPM
8709016	54	CHAR	IPA	1.000		PPM
8709010	54	CHAR	IPA	1.000		PPM
8709006	54	CHAR	IPA	1.000	<	PPM
8709003	54	CHAR	IPA	1.000		PPM
CR5375	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5366	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5363	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5357	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5316	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5315	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5311	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5300	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5297	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5287	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
CR5261	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5256	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5201	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5195	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5182	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5141	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5137	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5114	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK5551	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK5502	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK5497	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK5447	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK5440	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK5390	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK5363	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK5354	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK5327	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK5274	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK5271	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK3720	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK3701	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK3695	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK3646	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK3603	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK3599	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK3593	54	OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR6316	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CR6288	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CR6243	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CR6184	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CR5382	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CR5375	54	OVM	N-BUTYL ACETATE	.117	<	PPM
CR5315	54	OVM	N-BUTYL ACETATE	.117	<	PPM
CR5290	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CR5283	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CR5277	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CR5263	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CR5261	54	OVM	N-BUTYL ACETATE	.117	<	PPM
CR5180	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CR5126	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CQ9053	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CK5461	54	OVM	N-BUTYL ACETATE	.111	<	PPM
CK5363	54	OVM	N-BUTYL ACETATE	.111	<	PPM
CK5274	54	OVM	N-BUTYL ACETATE	.111	<	PPM
CK3720	54	OVM	N-BUTYL ACETATE	.126	<	PPM
CK3650	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CK3603	54	OVM	N-BUTYL ACETATE	.097	<	PPM
CK3599	54	OVM	N-BUTYL ACETATE	.135	<	PPM
CK3593	54	OVM	N-BUTYL ACETATE	.123	<	PPM
CK3539	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CJ2600	54	OVM	N-BUTYL ACETATE	.000	ND	PPM

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
CJ2598	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CJ2442	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CJ2339	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CJ2286	54	OVM	N-BUTYL ACETATE	.122		PPM
CJ2263	54	OVM	N-BUTYL ACETATE	.382		PPM
CJ2256	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CJ2205	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
CJ2204	54	OVM	N-BUTYL ACETATE	.153		PPM
CJ2176	54		N-BUTYL ACETATE	.010		MG
CJ2141	54	OVM	N-BUTYL ACETATE	.000	ND	PPM
8712016	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8712013	54	CHAR	N-BUTYL ACETATE	.000	TR	
8712002	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8711039	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8711037	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8711021	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8711018	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8711017	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8711013	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8711008	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8711007	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8709028	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8709027	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8709012	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8709011	54	CHAR	N-BUTYL ACETATE	.000	ND	
8709005	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8709004	54	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8711016	54	ORBO	NITRIC ACID	.000	ND	
8711015	54	ORBO	NITRIC ACID	.000	ND	
8711014	54	ORBO	NITRIC ACID	.000	ND	
8712037	54	ORBO	PHOSPHORIC	.000	ND	
8711016	54	ORBO	PHOSPHORIC	.000	ND	
8711015	54	ORBO	PHOSPHORIC	.000	ND	
8711014	54	ORBO	PHOSPHORIC	.000	ND	
8712042	54	ORBO	SULFURIC ACID	.000	ND	
8712041	54	ORBO	SULFURIC ACID	.000	ND	
8712040	54	ORBO	SULFURIC ACID	.000	ND	
8712039	54	ORBO	SULFURIC ACID	.000	ND	
8712038	54	ORBO	SULFURIC ACID	.000	ND	
8712037	54	ORBO	SULFURIC ACID	.000	ND	
8712036	54	ORBO	SULFURIC ACID	.000	ND	
8712035	54	ORBO	SULFURIC ACID	.000	ND	
8712034	54	ORBO	SULFURIC ACID	.000	ND	
8712033	54	ORBO	SULFURIC ACID	.000	ND	
8711016	54	ORBO	SULFURIC ACID	.000	ND	
8711015	54	ORBO	SULFURIC ACID	.000	ND	
8711014	54	ORBO	SULFURIC ACID	.000	ND	
8709057	54	ORBO	SULFURIC ACID	.000	ND	
8709056	54	ORBO	SULFURIC ACID	.000	ND	
8709040	54	ORBO	SULFURIC ACID	.000	ND	
8709039	54	ORBO	SULFURIC ACID	.000	ND	

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8709038	54	ORBO	SULFURIC ACID	.000	ND	
8709037	54	ORBO	SULFURIC ACID	.000	ND	
8709036	54	ORBO	SULFURIC ACID	.000	ND	
8709035	54	ORBO	SULFURIC ACID	.000	ND	
8709034	54	ORBO	SULFURIC ACID	.000	ND	
8709033	54	ORBO	SULFURIC ACID	.000	ND	
8709032	54	ORBO	SULFURIC ACID	.010		MG/M3
8709031	54	ORBO	SULFURIC ACID	.000	ND	
CR6316	54	OVM	XYLENE	.000	ND	PPM
CR6288	54	OVM	XYLENE	.000	ND	PPM
CR6243	54	OVM	XYLENE	.000	ND	PPM
CR6184	54	OVM	XYLENE	.000	ND	PPM
CR5382	54	OVM	XYLENE	.000	ND	PPM
CR5375	54	OVM	XYLENE	.179		PPM
CR5315	54	OVM	XYLENE	.036		PPM
CR5290	54	OVM	XYLENE	.000	ND	PPM
CR5283	54	OVM	XYLENE	.000	ND	PPM
CR5277	54	OVM	XYLENE	.000	ND	PPM
CR5263	54	OVM	XYLENE	91.353		PPM
CR5261	54	OVM	XYLENE	23.273		PPM
CR5180	54	OVM	XYLENE	.000	ND	PPM
CR5126	54	OVM	XYLENE	.000	ND	PPM
CQ9053	54	OVM	XYLENE	.000	ND	PPM
CK5461	54	OVM	XYLENE	.068	<	PPM
CK5363	54	OVM	XYLENE	.000	ND	PPM
CK5274	54	OVM	XYLENE	.295		PPM
CK3650	54	OVM	XYLENE	.000	ND	PPM
CK3603	54	OVM	XYLENE	.080		PPM
CK3599	54	OVM	XYLENE	.083	<	PPM
CK3593	54	OVM	XYLENE	.101		PPM
CK3539	54	OVM	XYLENE	.000	ND	PPM
CJ2600	54	OVM	XYLENE	.000	ND	PPM
CJ2598	54	OVM	XYLENE	.000	ND	PPM
CJ2561	54	OVM	XYLENE	.000	ND	PPM
CJ2485	54	OVM	XYLENE	.000	ND	PPM
CJ2442	54	OVM	XYLENE	.000	ND	PPM
CJ2417	54	OVM	XYLENE	.000	ND	PPM
CJ2364	54	OVM	XYLENE	.000	ND	PPM
CJ2339	54	OVM	XYLENE	.000	ND	PPM
CJ2321	54	OVM	XYLENE	.000	ND	PPM
CJ2286	54	OVM	XYLENE	.000	ND	PPM
CJ2285	54	OVM	XYLENE	.000	ND	PPM
CJ2263	54	OVM	XYLENE	.150		PPM
CJ2256	54	OVM	XYLENE	.000	ND	PPM
CJ2205	54	OVM	XYLENE	.081	<	PPM
CJ2204	54	OVM	XYLENE	.000	ND	PPM
CJ2176	54		XYLENE	.000	ND	
CJ2141	54	OVM	XYLENE	.000	ND	PPM
8712017	54	CHAR	XYLENE	1.000	<	PPM
8712016	54	CHAR	XYLENE	1.000	<	PPM
8712002	54	CHAR	XYLENE	1.000	<	PPM

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDING 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8711039	54	CHAR	XYLENE	1.000	<	PPM
8711037	54	CHAR	XYLENE	1.000	<	PPM
8711021	54	CHAR	XYLENE	1.000	<	PPM
8711018	54	CHAR	XYLENE	1.000	<	PPM
8711017	54	CHAR	XYLENE	1.000	<	PPM
8711013	54	CHAR	XYLENE	1.000	<	PPM
8711009	54	CHAR	XYLENE	1.000	<	PPM
8711008	54	CHAR	XYLENE	1.000	<	PPM
8711007	54	CHAR	XYLENE	1.000	<	PPM
8709054	54	CHAR	XYLENE	1.000	<	PPM
8709045	54	CHAR	XYLENE	.000	ND	
8709043	54	CHAR	XYLENE	1.000	<	PPM
8709042	54	CHAR	XYLENE	1.000	<	PPM
8709019	54	CHAR	XYLENE	1.000	<	PPM
8709013	54	CHAR	XYLENE	1.000	<	PPM
8709012	54	CHAR	XYLENE	1.000	<	PPM
8709011	54	CHAR	XYLENE	.000	ND	
8709005	54	CHAR	XYLENE	1.000	<	PPM
8709004	54	CHAR	XYLENE	1.000	<	PPM

IH AIR SAMPLE RESULTS AS OF 04/01/88
FOR BUILDINGS OTHER THAN 51 OR 54

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
CK5312		OVM	1,1,1 TRICHLOROETHANE	.000	ND	
8712B033		ORBO	ACETIC ACID	.000	ND	
CR5298		OVM	ACETONE	.000	ND	PPM
CK5312		OVM	ACETONE	.000	ND	PPM
CJ2499			ACETONE	.000	ND	
CJ2292			ACETONE	.000	ND	
8712B020			ACETONE	.000	ND	
8712B02		CHAR	ACETONE	.000	ND	
8709B030			ACETONE	.000	ND	
8709B003		CHAR	ACETONE	.000	ND	
CJ2499			CELLOSOLVE	.000	ND	
CJ2292			CELLOSOLVE	.000	ND	
8709B030			CELLOSOLVE	.000	ND	
8709B003		CHAR	CELLOSOLVE	.000	ND	
CR5298		OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CK5219		OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CJ2499			ETHYL BENZENE	.000	ND	
CJ2292			ETHYL BENZENE	.000	ND	
8709B030			ETHYL BENZENE	.000	ND	
8709B003		CHAR	ETHYL BENZENE	.000	ND	
8712B033		ORBO	HCL	10.600	<	UG/T
8709B031			HCL	9.900	<	UG/T
8712B033		ORBO	HYDROFLUORIC ACID	1.600		UG/T
8709B031			HYDROFLUORIC ACID	.000	ND	
CR5298		OVM	IPA	.000	ND	PPM
CK5312		OVM	IPA	.000	ND	PPM
CK5219		OVM	IPA	.000	<	PPM
CJ2499			IPA	.000	ND	
CJ2292			IPA	.000	ND	
8712B02		CHAR	IPA	.000	ND	
8709B030			IPA	.000	ND	
8709B003		CHAR	IPA	.000	ND	
CR5298		OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK5312		OVM	ISOPROPYL ACETATE	.000	ND	PPM
CK5219		OVM	ISOPROPYL ACETATE	.000	ND	PPM
CR5298		OVM	N-BUTYL ACETATE	.000	ND	PPM
CK5219		OVM	N-BUTYL ACETATE	.000	<	PPM
CJ2499			N-BUTYL ACETATE	.000	ND	
8709B030			N-BUTYL ACETATE	.000	ND	
8709B003		CHAR	N-BUTYL ACETATE	.000	ND	
8712B033		ORBO	PHOSPHORIC	.000	ND	
8712B033		ORBO	SULFURIC ACID	.000	ND	
8709B031			SULFURIC ACID	.000	ND	
CR5298		OVM	XYLENE	.000	ND	PPM
CK5219		OVM	XYLENE	.000	ND	PPM
CJ2499			XYLENE	.000	ND	
CJ2292			XYLENE	.000	ND	
8709B030			XYLENE	.000	ND	
8709B003		CHAR	XYLENE	.000	ND	

IH AIR SAMPLE RESULT AVERAGES
FOR BUILDING 04 AS OF 04/19/88

CHEMICAL	AVE CONC	MAX CONC	MIN CONC	SAMPLENO COUNT
ACETIC ACID	.040	.060	.020	4
ACETONE	.555	8.000	.000	40
ARSINE	.002	.002	.001	8
CELLOSOLVE	.143	1.000	.000	7
CELLOSOLVE ACETATE	.053	1.000	.000	19
ETHYL BENZENE	.361	1.000	.000	32
HCL	.085	2.470	.006	41
HYDROFLUORIC ACID	.102	2.700	.001	38
IPA	3.413	77.000	.000	94
N-BUTYL ACETATE	.395	1.000	.000	38
NITRIC ACID	.013	.039	.001	4
SULFURIC ACID	.011	.020	.006	13
XXXXX	1.019	2.000	.000	16
XYLENE	.618	2.000	.000	42

ALL SOLVENT RESULTS ARE IN PPM
ALL ACID RESULTS ARE IN MG/M3

IH AIR SAMPLE RESULTS AS OF 04/19/98
FOR BUILDING 04

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8706019	04	ORBO	ACETIC ACID	.000	ND	
8706020	04	ORBO	ACETIC ACID	.000	ND	
8706025	04	ORBO	ACETIC ACID	.000	ND	
8706026	04	ORBO	ACETIC ACID	.000	ND	
8706027	04	ORBO	ACETIC ACID	.000	ND	
8706028	04	ORBO	ACETIC ACID	.000	ND	
8707037	04	ORBO	ACETIC ACID	.030	<	MG/M3
8707038	04	ORBO	ACETIC ACID	.060	<	MG/M3
8707041	04	ORBO	ACETIC ACID	.050	<	MG/M3
8707042	04	ORBO	ACETIC ACID	.020	<	MG/M3
8706B020	04	ORBO	ACETIC ACID	.000	ND	
8706B028	04	ORBO	ACETIC ACID	.000	ND	
8705016	04	CHAR	ACETONE	1.000	<	PPM
8705017	04	CHAR	ACETONE	1.000	<	PPM
8705024	04	CHAR	ACETONE	.000	ND	
8705025	04	CHAR	ACETONE	.000	ND	
8705031	04	CHAR	ACETONE	.000	ND	
8705032	04	CHAR	ACETONE	.000	ND	
8705033	04	CHAR	ACETONE	1.000	<	PPM
8705034	04	CHAR	ACETONE	.000	ND	
8705035	04	CHAR	ACETONE	.000	ND	
8705036	04	CHAR	ACETONE	.000	ND	
8705043	04	CHAR	ACETONE	8.000		PPM
8706007	04	CHAR	ACETONE	.000	ND	
8706008	04	CHAR	ACETONE	.000	ND	
8706009	04	CHAR	ACETONE	.000	ND	
8706010	04	CHAR	ACETONE	.000	ND	
8706011	04	CHAR	ACETONE	.000	ND	
8706016	04	CHAR	ACETONE	.000	ND	
8706018	04	CHAR	ACETONE	.000	ND	
8706021	04	CHAR	ACETONE	.000	ND	
8706022	04	CHAR	ACETONE	.000	ND	
8706039	04	CHAR	ACETONE	.000	ND	
8707003	04	CHAR	ACETONE	.000	ND	
8707004	04	CHAR	ACETONE	.000	ND	
8707010	04	CHAR	ACETONE	.000	ND	
8707015	04	CHAR	ACETONE	.000	ND	
8707017	04	CHAR	ACETONE	.000	ND	
8707018	04	CHAR	ACETONE	1.000	<	PPM
8707019	04	CHAR	ACETONE	.000	ND	
8707020	04	CHAR	ACETONE	.000	ND	
8707021	04	CHAR	ACETONE	.000	ND	
8707029	04	CHAR	ACETONE	.000	ND	
8707035	04	CHAR	ACETONE	.500	<	PPM
8707036	04	CHAR	ACETONE	.300	<	PPM
ZX4981	04	OVM	ACETONE	.987		PPM
ZX4979	04	OVM	ACETONE	.210		PPM
ZX4970	04	OVM	ACETONE	.364		PPM
ZX4936	04	OVM	ACETONE	2.416		PPM
ZX4922	04	OVM	ACETONE	.187		PPM
ZX4918	04	OVM	ACETONE	.158		PPM

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
ZX4913	04	OVM	ACETONE	.723		PPM
ZX4864	04	OVM	ACETONE	.000	ND	PPM
ZX4858	04	OVM	ACETONE	.785		PPM
ZX4790	04	OVM	ACETONE	.664		PPM
ZX4699	04	OVM	ACETONE	1.334		PPM
ZX4449	04	OVM	ACETONE	.134		PPM
ZX4379	04	OVM	ACETONE	.169		PPM
ZX4363	04	OVM	ACETONE	.174		PPM
ZX4299	04	OVM	ACETONE	.206		PPM
CE7785	04	OVM	ACETONE	.000	ND	PPM
CE7734	04	OVM	ACETONE	.000	ND	PPM
CE7661	04	OVM	ACETONE	.000	ND	PPM
CE7640	04	OVM	ACETONE	.000	ND	PPM
CD9867	04	OVM	ACETONE	.000	ND	PPM
CD9795	04	OVM	ACETONE	.000	ND	PPM
CD7686	04	OVM	ACETONE	.000	ND	PPM
CD7603	04	OVM	ACETONE	.000	ND	PPM
8706017	04	CHAR	ACETONE	.000	ND	
CD7293	04	OVM	ACETONE	.000	ND	PPM
8706B018	04	CHAR	ACETONE	.000	ND	
8706B009	04	CHAR	ACETONE	.000	ND	
8706B006	04	CHAR	ACETONE	.000	ND	
ZX4317	04	OVM	ACETONE	.000	ND	PPM
8705B043	04	CHAR	ACETONE	.000	ND	
ZX4254	04	OVM	ACETONE	.000	ND	PPM
8705B035	04	CHAR	ACETONE	.000	ND	
8705B034	04	CHAR	ACETONE	.000	ND	
ZX4835	04	OVM	ACETONE	.000	ND	PPM
8705B032	04	CHAR	ACETONE	.000	ND	
8707B003	04	CHAR	ACETONE	.000	ND	
8707005	04	CHAR	ACETONE	.000	ND	
8707B010	04	CHAR	ACETONE	.000	ND	
8707B018	04	CHAR	ACETONE	.000	ND	
CD9756	04	OVM	ACETONE	.000	ND	PPM
8706B037	04	CHAR	ACETONE	.000	ND	
Y07982	04	OVM	ACETONE	.305		PPM
CD9969	04	OVM	ACETONE	.000	ND	PPM
8707040	04	CHAR	ACETONE	.400	<	PPM
8707043	04	CHAR	ACETONE	.200	<	PPM
8707B036	04	CHAR	ACETONE	.000	ND	PPM
8707B022	04	CHAR	ACETONE	.000	ND	
8705013	04	ORBO	ARSINE	.002	<	MG/M3
8705014	04	ORBO	ARSINE	.002	<	MG/M3
8707001	04	ORBO	ARSINE	.001	<	MG/M3
8707002	04	ORBO	ARSINE	.002	<	MG/M3
8707014	04	ORBO	ARSINE	.002	<	MG/M3
8707016	04	ORBO	ARSINE	.002	<	MG/M3
8707030	04	ORBO	ARSINE	.002	<	MG/M3
8707031	04	ORBO	ARSINE	.002	<	MG/M3
8705B013	04	CHAR	ARSINE	.044	<	UG/T
8707B014	04	CHAR	ARSINE	.058	<	UG/T

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8707B031	04	CHAR	ARSINE	.068	<	UG/T
8707B001	04	CHAR	ARSINE	.058	<	UG/T
8705019	04	CHAR	CELLOSOLVE	.000	ND	
8705022	04	CHAR	CELLOSOLVE	.000	ND	
8705035	04	CHAR	CELLOSOLVE	.000	ND	
8706038	04	CHAR	CELLOSOLVE	.000	ND	
8706039	04	CHAR	CELLOSOLVE	.000	ND	
8707010	04	CHAR	CELLOSOLVE	.000	ND	
8707017	04	CHAR	CELLOSOLVE	1.000	<	PPM
8707018	04	CHAR	CELLOSOLVE	.000	ND	
ZX4933	04	OVM	CELLOSOLVE	.000	ND	PPM
ZX4864	04	OVM	CELLOSOLVE	.000	ND	PPM
ZX4840	04	OVM	CELLOSOLVE	.000	ND	PPM
CE7789	04	OVM	CELLOSOLVE	.000	ND	PPM
CD9867	04	OVM	CELLOSOLVE	.000	ND	PPM
8706B021	04	CHAR	CELLOSOLVE	.000	ND	
8706B009	04	CHAR	CELLOSOLVE	.000	ND	
8705B034	04	CHAR	CELLOSOLVE	.000	ND	
8705B027	04	CHAR	CELLOSOLVE	.000	ND	
8705B023	04	CHAR	CELLOSOLVE	.000	ND	
8705B032	04	CHAR	CELLOSOLVE	.000	ND	
8707B010	04	CHAR	CELLOSOLVE	.000	ND	
8707B018	04	CHAR	CELLOSOLVE	.000	ND	
CD9756	04	OVM	CELLOSOLVE	.000	ND	PPM
8706B037	04	CHAR	CELLOSOLVE	.000	ND	
8705027	04	CHAR	CELLOSOLVE ACETATE	.000	ND	
8705032	04	CHAR	CELLOSOLVE ACETATE	.000	ND	
8705035	04	CHAR	CELLOSOLVE ACETATE	.000	ND	
8705044	04	CHAR	CELLOSOLVE ACETATE	.000	ND	
8706024	04	CHAR	CELLOSOLVE ACETATE	1.000	<	PPM
8707022	04	CHAR	CELLOSOLVE ACETATE	.000	ND	
8707028	04	CHAR	CELLOSOLVE ACETATE	.000	ND	
ZX4944	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
ZX4738	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
ZX4439	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CE7817	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CE7669	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CD9891	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CD9849	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CD9795	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CD7603	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CD7501	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CD7490	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CD7462	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CD7447	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
CD7293	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
8706B009	04	CHAR	CELLOSOLVE ACETATE	.000	ND	
8706B006	04	CHAR	CELLOSOLVE ACETATE	.000	ND	
ZX4317	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
8705B043	04	CHAR	CELLOSOLVE ACETATE	.000	ND	
ZX4254	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8705B034	04	CHAR	CELLOSOLVE ACETATE	.000	ND	
8705B032	04	CHAR	CELLOSOLVE ACETATE	.000	ND	
CD9969	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
8707B022	04	CHAR	CELLOSOLVE ACETATE	.000	ND	
CD7767	04	OVM	CELLOSOLVE ACETATE	.000	ND	PPM
8705019	04	CHAR	ETHYL BENZENE	1.000	<	PPM
8705022	04	CHAR	ETHYL BENZENE	1.000	<	PPM
8705027	04	CHAR	ETHYL BENZENE	1.000	<	PPM
8705042	04	CHAR	ETHYL BENZENE	1.000	<	PPM
8705044	04	CHAR	ETHYL BENZENE	1.000	<	PPM
8706005	04	CHAR	ETHYL BENZENE	1.000	<	PPM
8706006	04	CHAR	ETHYL BENZENE	1.000	<	PPM
8706021	04	CHAR	ETHYL BENZENE	1.000	<	PPM
8706022	04	CHAR	ETHYL BENZENE	1.000	<	PPM
8706024	04	CHAR	ETHYL BENZENE	1.000	<	PPM
8707022	04	CHAR	ETHYL BENZENE	1.000	<	PPM
8707028	04	CHAR	ETHYL BENZENE	.000	ND	
ZX4944	04	OVM	ETHYL BENZENE	.000	ND	PPM
ZX4933	04	OVM	ETHYL BENZENE	.000	ND	PPM
ZX4864	04	OVM	ETHYL BENZENE	.000	ND	PPM
ZX4840	04	OVM	ETHYL BENZENE	.153		PPM
ZX4738	04	OVM	ETHYL BENZENE	.157		PPM
ZX4439	04	OVM	ETHYL BENZENE	.113		PPM
ZX4310	04	OVM	ETHYL BENZENE	.038		PPM
CE7817	04	OVM	ETHYL BENZENE	.000	ND	PPM
CE7789	04	OVM	ETHYL BENZENE	.070		PPM
CE7669	04	OVM	ETHYL BENZENE	.000	ND	PPM
CD9891	04	OVM	ETHYL BENZENE	.000	ND	PPM
CD9795	04	OVM	ETHYL BENZENE	.000	ND	PPM
CD8264	04	OVM	ETHYL BENZENE	.017		PPM
CD7603	04	OVM	ETHYL BENZENE	.000	ND	PPM
CD7490	04	OVM	ETHYL BENZENE	.000	ND	PPM
CD7462	04	OVM	ETHYL BENZENE	.012		PPM
8706B021	04	CHAR	ETHYL BENZENE	.000	ND	
CD7293	04	OVM	ETHYL BENZENE	.000	ND	PPM
8706B009	04	CHAR	ETHYL BENZENE	.000	ND	
8706B006	04	CHAR	ETHYL BENZENE	.000	ND	
ZX4317	04	OVM	ETHYL BENZENE	.000	ND	PPM
8705B043	04	CHAR	ETHYL BENZENE	.000	ND	
ZX4254	04	OVM	ETHYL BENZENE	.000	ND	PPM
8705B034	04	CHAR	ETHYL BENZENE	.000	ND	
8705B027	04	CHAR	ETHYL BENZENE	.000	ND	
8705B023	04	CHAR	ETHYL BENZENE	.000	ND	
8705B032	04	CHAR	ETHYL BENZENE	.000	ND	
CD9969	04	OVM	ETHYL BENZENE	.000	ND	PPM
8707B022	04	CHAR	ETHYL BENZENE	.000	ND	
CD7767	04	OVM	ETHYL BENZENE	.000	ND	PPM
8705011	04	ORBO	HCL	.020		MG/M3
8705012	04	ORBO	HCL	.010		MG/M3
8705020	04	ORBO	HCL	.010		MG/M3
8705021	04	ORBO	HCL	.010		MG/M3

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8705026	04	ORBO	HCL	.010	<	MG/M3
8705028	04	ORBO	HCL	.030	<	MG/M3
8705037	04	ORBO	HCL	.040	<	MG/M3
8705038	04	ORBO	HCL	.000	ND	
8705039	04	ORBO	HCL	.010	<	MG/M3
8705040	04	ORBO	HCL	.050	<	MG/M3
8705041	04	ORBO	HCL	.010	<	MG/M3
8706001	04	ORBO	HCL	2.470		MG/M3
8706003	04	ORBO	HCL	.010		MG/M3
8706012	04	ORBO	HCL	.010	<	MG/M3
8706013	04	ORBO	HCL	.130	<	MG/M3
8706014	04	ORBO	HCL	.010	<	MG/M3
8706019	04	ORBO	HCL	.030	<	MG/M3
8706020	04	ORBO	HCL	.020	<	MG/M3
8706023	04	ORBO	HCL	.050		MG/M3
8706025	04	ORBO	HCL	.010	<	MG/M3
8706026	04	ORBO	HCL	.040	<	MG/M3
8706027	04	ORBO	HCL	.020	<	MG/M3
8706028	04	ORBO	HCL	.020	<	MG/M3
8706031	04	ORBO	HCL	.040	<	MG/M3
8706032	04	ORBO	HCL	.030	<	MG/M3
8706033	04	ORBO	HCL	.000	ND	
8706034	04	ORBO	HCL	.080	<	MG/M3
8706035	04	ORBO	HCL	.000	ND	
8706036	04	ORBO	HCL	.000	ND	
8707006	04	ORBO	HCL	.010	<	MG/M3
8707007	04	ORBO	HCL	.010	<	MG/M3
8707008	04	ORBO	HCL	.010		MG/M3
8707009	04	ORBO	HCL	.010		MG/M3
8707011	04	ORBO	HCL	.000	ND	
8707012	04	ORBO	HCL	.030	<	MG/M3
8707013	04	ORBO	HCL	.000	ND	
8707023	04	ORBO	HCL	.020	<	MG/M3
8707024	04	ORBO	HCL	.030	<	MG/M3
8707025	04	ORBO	HCL	.010	<	MG/M3
8707026	04	ORBO	HCL	.000	ND	
8707027	04	ORBO	HCL	.000	ND	
8707032	04	ORBO	HCL	.030	<	MG/M3
8707033	04	ORBO	HCL	.040	<	MG/M3
8707034	04	ORBO	HCL	.020	<	MG/M3
8707037	04	ORBO	HCL	.006		MG/M3
8707038	04	ORBO	HCL	.012	<	MG/M3
8707041	04	ORBO	HCL	.020	<	MG/M3
8707042	04	ORBO	HCL	.020	<	MG/M3
8706B020	04	ORBO	HCL	2.000		UG/T
8706015	04	ORBO	HCL	.050	<	MG/M3
8706B015	04	ORBO	HCL	2.000		UG/T
8706B004	04	ORBO	HCL	.500		UG/T
8705B038	04	ORBO	HCL	.100	<	UG/T
8705B028	04	ORBO	HCL	6.500	<	UG/T
8705B042	04	ORBO	HCL	11.300	<	UG/T

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLEND	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8706B002	04	ORBO	HCL	.600		UG/T
8705B021	04	ORBO	HCL	.100	<	UG/T
8706B028	04	ORBO	HCL	1.900		UG/T
8707B011	04	ORBO	HCL	5.700	<	UG/T
8707B025	04	ORBO	HCL	4.300		UG/T
8707B034	04	ORBO	HCL	4.400	<	UG/T
8707B009	04	ORBO	HCL	3.300		UG/T
8707B006	04	ORBO	HCL	3.300		UG/T
8706B031	04	ORBO	HCL	4.600		UG/T
8705011	04	ORBO	HYDROFLUORIC ACID	.010		MG/M3
8705012	04	ORBO	HYDROFLUORIC ACID	.010		MG/M3
8705020	04	ORBO	HYDROFLUORIC ACID	.010		MG/M3
8705021	04	ORBO	HYDROFLUORIC ACID	.010		MG/M3
8705026	04	ORBO	HYDROFLUORIC ACID	.010		MG/M3
8705028	04	ORBO	HYDROFLUORIC ACID	.020	<	MG/M3
8705037	04	ORBO	HYDROFLUORIC ACID	.040	<	MG/M3
8705038	04	ORBO	HYDROFLUORIC ACID	.010	<	MG/M3
8705039	04	ORBO	HYDROFLUORIC ACID	.010	<	MG/M3
8705040	04	ORBO	HYDROFLUORIC ACID	.040	<	MG/M3
8705041	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8706001	04	ORBO	HYDROFLUORIC ACID	2.700	<	MG/M3
8706003	04	ORBO	HYDROFLUORIC ACID	.020	<	MG/M3
8706014	04	ORBO	HYDROFLUORIC ACID	.010	<	MG/M3
8706019	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8706020	04	ORBO	HYDROFLUORIC ACID	.020		MG/M3
8706023	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8706025	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8706026	04	ORBO	HYDROFLUORIC ACID	.050	<	MG/M3
8706027	04	ORBO	HYDROFLUORIC ACID	.020	<	MG/M3
8706028	04	ORBO	HYDROFLUORIC ACID	.020	<	MG/M3
8706031	04	ORBO	HYDROFLUORIC ACID	.030	<	MG/M3
8706032	04	ORBO	HYDROFLUORIC ACID	.360	<	MG/M3
8706033	04	ORBO	HYDROFLUORIC ACID	.020	<	MG/M3
8706034	04	ORBO	HYDROFLUORIC ACID	.090	<	MG/M3
8706035	04	ORBO	HYDROFLUORIC ACID	.020	<	MG/M3
8706036	04	ORBO	HYDROFLUORIC ACID	.010	<	MG/M3
8707006	04	ORBO	HYDROFLUORIC ACID	.040	<	MG/M3
8707007	04	ORBO	HYDROFLUORIC ACID	.010	<	MG/M3
8707008	04	ORBO	HYDROFLUORIC ACID	.020		MG/M3
8707009	04	ORBO	HYDROFLUORIC ACID	.020		MG/M3
8707011	04	ORBO	HYDROFLUORIC ACID	.020		MG/M3
8707012	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8707013	04	ORBO	HYDROFLUORIC ACID	.010	<	MG/M3
8707023	04	ORBO	HYDROFLUORIC ACID	.010		MG/M3
8707024	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8707025	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8707026	04	ORBO	HYDROFLUORIC ACID	.050		MG/M3
8707027	04	ORBO	HYDROFLUORIC ACID	.020		MG/M3
8707032	04	ORBO	HYDROFLUORIC ACID	.080		MG/M3
8707033	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8707034	04	ORBO	HYDROFLUORIC ACID	.000	ND	

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8707037	04	ORBO	HYDROFLUORIC ACID	.005		MG/M3
8707038	04	ORBO	HYDROFLUORIC ACID	.006	<	MG/M3
8707041	04	ORBO	HYDROFLUORIC ACID	.005	<	MG/M3
8707042	04	ORBO	HYDROFLUORIC ACID	.001		MG/M3
8706B020	04	ORBO	HYDROFLUORIC ACID	.100	<	UG/T
8706015	04	ORBO	HYDROFLUORIC ACID	.030	<	MG/M3
8706B015	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8706B004	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8705B038	04	ORBO	HYDROFLUORIC ACID	2.800	<	UG/T
8705B028	04	ORBO	HYDROFLUORIC ACID	1.500		UG/T
8705B042	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8706B002	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8705B021	04	ORBO	HYDROFLUORIC ACID	4.800	<	UG/T
8706B028	04	ORBO	HYDROFLUORIC ACID	3.200		UG/T
Y07982	04	GVM	HYDROFLUORIC ACID	.110		MG
8707B011	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8707B025	04	ORBO	HYDROFLUORIC ACID	.600		UG/T
8707B034	04	ORBO	HYDROFLUORIC ACID	.000	ND	
8707B009	04	ORBO	HYDROFLUORIC ACID	.100		UG/T
8707B006	04	ORBO	HYDROFLUORIC ACID	7.000		UG/T
8706B031	04	ORBO	HYDROFLUORIC ACID	4.600		UG/T
8705016	04	CHAR	IPA	1.000	<	PPM
8705017	04	CHAR	IPA	21.000		PPM
8705018	04	CHAR	IPA	1.000		PPM
8705019	04	CHAR	IPA	1.000	<	PPM
8705022	04	CHAR	IPA	1.000	<	PPM
8705023	04	CHAR	IPA	3.000		PPM
8705024	04	CHAR	IPA	1.000		PPM
8705025	04	CHAR	IPA	1.000		PPM
8705027	04	CHAR	IPA	1.000	<	PPM
8705031	04	CHAR	IPA	2.000		PPM
8705032	04	CHAR	IPA	1.000		PPM
8705033	04	CHAR	IPA	59.000		PPM
8705034	04	CHAR	IPA	1.000		PPM
8705035	04	CHAR	IPA	1.000		PPM
8705036	04	CHAR	IPA	1.000	<	PPM
8705042	04	CHAR	IPA	1.000	<	PPM
8705043	04	CHAR	IPA	5.000		PPM
8705044	04	CHAR	IPA	.000	ND	
8706005	04	CHAR	IPA	3.000		PPM
8706006	04	CHAR	IPA	1.000	<	PPM
8706007	04	CHAR	IPA	2.000		PPM
8706008	04	CHAR	IPA	1.000		PPM
8706009	04	CHAR	IPA	77.000		PPM
8706010	04	CHAR	IPA	2.000		PPM
8706011	04	CHAR	IPA	2.000		PPM
8706016	04	CHAR	IPA	3.000		PPM
8706018	04	CHAR	IPA	.000	ND	
8706021	04	CHAR	IPA	1.000		PPM
8706022	04	CHAR	IPA	1.000	<	PPM
8706024	04	CHAR	IPA	1.000	<	PPM

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8706038	04	CHAR	IPA	.000	ND	
8706039	04	CHAR	IPA	1.000	<	PPM
8707003	04	CHAR	IPA	.000	ND	
8707004	04	CHAR	IPA	.000	ND	
8707010	04	CHAR	IPA	1.000		PPM
8707017	04	CHAR	IPA	3.000		PPM
8707018	04	CHAR	IPA	.000	ND	
8707019	04	CHAR	IPA	24.000		PPM
8707020	04	CHAR	IPA	4.000		PPM
8707021	04	CHAR	IPA	1.000		PPM
8707022	04	CHAR	IPA	1.000	<	PPM
8707028	04	CHAR	IPA	1.000		PPM
8707029	04	CHAR	IPA	1.000		PPM
8707035	04	CHAR	IPA	.500	<	PPM
8707036	04	CHAR	IPA	2.700		PPM
ZX4987	04	OVM	IPA	.000	ND	PPM
ZX4981	04	OVM	IPA	.246		PPM
ZX4979	04	OVM	IPA	1.214		PPM
ZX4972	04	OVM	IPA	2.602		PPM
ZX4970	04	OVM	IPA	.890		PPM
ZX4944	04	OVM	IPA	1.366		PPM
ZX4936	04	OVM	IPA	.327		PPM
ZX4933	04	OVM	IPA	.000	ND	PPM
ZX4922	04	OVM	IPA	11.703		PPM
ZX4918	04	OVM	IPA	.420		PPM
ZX4913	04	OVM	IPA	1.117		PPM
ZX4864	04	OVM	IPA	1.209		PPM
ZX4858	04	OVM	IPA	28.005		PPM
ZX4840	04	OVM	IPA	.000	ND	PPM
ZX4790	04	OVM	IPA	.626		PPM
ZX4738	04	OVM	IPA	.128		PPM
ZX4449	04	OVM	IPA	.115		PPM
ZX4439	04	OVM	IPA	2.654		PPM
ZX4379	04	OVM	IPA	.000	ND	PPM
ZX4376	04	OVM	IPA	.000	ND	PPM
ZX4363	04	OVM	IPA	1.012		PPM
ZX4310	04	OVM	IPA	2.037		PPM
ZX4299	04	OVM	IPA	3.270		PPM
ZX4271	04	OVM	IPA	.000	TR	PPM
CE7817	04	OVM	IPA	.000	ND	PPM
CE7789	04	OVM	IPA	.000	ND	PPM
CE7785	04	OVM	IPA	.728		PPM
CE7734	04	OVM	IPA	.000	ND	PPM
CE7669	04	OVM	IPA	.000	ND	PPM
CE7661	04	OVM	IPA	12.851		PPM
CE7640	04	OVM	IPA	.000	ND	PPM
CE7608	04	OVM	IPA	.134		PPM
CD9891	04	OVM	IPA	1.293		PPM
CD9867	04	OVM	IPA	2.591		PPM
CD9849	04	OVM	IPA	.000	ND	PPM
CD9795	04	OVM	IPA	1.238		PPM

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	DI	CUNIT
CD8264	04	OVM	IPA	.000	ND	PPM
CD7686	04	OVM	IPA	1.477		PPM
CD7603	04	OVM	IPA	.000	ND	PPM
CD7501	04	OVM	IPA	.746		PPM
CD7490	04	OVM	IPA	1.206		PPM
CD7462	04	OVM	IPA	.593		PPM
CD7447	04	OVM	IPA	.388		PPM
8706B021	04	CHAR	IPA	.000	ND	
8706017	04	CHAR	IPA	.000	ND	
CD7293	04	OVM	IPA	.000	ND	PPM
8706B018	04	CHAR	IPA	.000	ND	
CD7530	04	OVM	IPA	.000		PPM
8706B009	04	CHAR	IPA	.000	ND	
8706B006	04	CHAR	IPA	.000	ND	
ZX4317	04	OVM	IPA	.000	ND	PPM
8705B043	04	CHAR	IPA	.000	ND	
ZX4254	04	OVM	IPA	.000	ND	PPM
8705B035	04	CHAR	IPA	.000	ND	
8705B034	04	CHAR	IPA	.000	ND	
8705B027	04	CHAR	IPA	.000	ND	
8705B023	04	CHAR	IPA	.000	ND	
ZX4835	04	OVM	IPA	.000	ND	PPM
8705B032	04	CHAR	IPA	.000	ND	
8707B003	04	CHAR	IPA	.000	ND	
8707005	04	CHAR	IPA	.000	ND	
8707B010	04	CHAR	IPA	.000	ND	
8707B018	04	CHAR	IPA	.000	ND	
CD9756	04	OVM	IPA	.000	ND	PPM
8706B037	04	CHAR	IPA	.000	ND	
Y07982	04	OVM	IPA	1.830		PPM
CD9969	04	OVM	IPA	.000	ND	PPM
8707040	04	CHAR	IPA	.400	<	PPM
8707043	04	CHAR	IPA	.200	<	PPM
8707B036	04	CHAR	IPA	.000	ND	PPM
8707B022	04	CHAR	IPA	.000	ND	
CD7767	04	OVM	IPA	.000	ND	PPM
8705019	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8705022	04	CHAR	N-BUTYL ACETATE	.000	ND	
8705027	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8705032	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8705035	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8705042	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8706005	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8706006	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8706021	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8706022	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8706024	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8706038	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8706039	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8707010	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8707017	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8707018	04	CHAR	N-BUTYL ACETATE	.000	ND	
8707022	04	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8707028	04	CHAR	N-BUTYL ACETATE	.000	ND	
ZX4944	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
ZX4933	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
ZX4864	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
ZX4840	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
ZX4738	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
ZX4699	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
ZX4439	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
CE7817	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
CE7789	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
CE7669	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
CD9891	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
CD9849	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
CD9795	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
CD7603	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
CD7501	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
CD7490	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
CD7462	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
CD7447	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
8706B021	04	CHAR	N-BUTYL ACETATE	.000	ND	
CD7293	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
8706B009	04	CHAR	N-BUTYL ACETATE	.000	ND	
8706B006	04	CHAR	N-BUTYL ACETATE	.000	ND	
ZX4317	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
8705B043	04	CHAR	N-BUTYL ACETATE	.000	ND	
ZX4254	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
8705B034	04	CHAR	N-BUTYL ACETATE	.000	ND	
8705B027	04	CHAR	N-BUTYL ACETATE	.000	ND	
8705B023	04	CHAR	N-BUTYL ACETATE	.000	ND	
8705B032	04	CHAR	N-BUTYL ACETATE	.000	ND	
8707B010	04	CHAR	N-BUTYL ACETATE	.000	ND	
8707B018	04	CHAR	N-BUTYL ACETATE	.000	ND	
8706B037	04	CHAR	N-BUTYL ACETATE	.000	ND	
CD9969	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
8707B022	04	CHAR	N-BUTYL ACETATE	.000	ND	
CD7767	04	OVM	N-BUTYL ACETATE	.000	ND	PPM
8705020	04	ORBO	NITRIC ACID	.000	ND	
8705021	04	ORBO	NITRIC ACID	.000	ND	
8705026	04	ORBO	NITRIC ACID	.000	ND	
8705028	04	ORBO	NITRIC ACID	.000	ND	
8705037	04	ORBO	NITRIC ACID	.000	ND	
8705039	04	ORBO	NITRIC ACID	.000	ND	
8705040	04	ORBO	NITRIC ACID	.000	ND	
8705041	04	ORBO	NITRIC ACID	.000	ND	
8706001	04	ORBO	NITRIC ACID	.000	ND	
8706012	04	ORBO	NITRIC ACID	.000	ND	
8706013	04	ORBO	NITRIC ACID	.000	ND	
8706019	04	ORBO	NITRIC ACID	.000	ND	
8706020	04	ORBO	NITRIC ACID	.000	ND	

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8706023	04	ORBO	NITRIC ACID	.000	ND	
8706025	04	ORBO	NITRIC ACID	.000	ND	
8706026	04	ORBO	NITRIC ACID	.000	ND	
8706027	04	ORBO	NITRIC ACID	.000	ND	
8706028	04	ORBO	NITRIC ACID	.000	ND	
8706031	04	ORBO	NITRIC ACID	.000	ND	
8707006	04	ORBO	NITRIC ACID	.000	ND	
8707007	04	ORBO	NITRIC ACID	.000	ND	
8707008	04	ORBO	NITRIC ACID	.000	ND	
8707009	04	ORBO	NITRIC ACID	.000	ND	
8707012	04	ORBO	NITRIC ACID	.000	ND	
8707025	04	ORBO	NITRIC ACID	.000	ND	
8707032	04	ORBO	NITRIC ACID	.000	ND	
8707033	04	ORBO	NITRIC ACID	.000	ND	
8707034	04	ORBO	NITRIC ACID	.000	ND	
8707037	04	ORBO	NITRIC ACID	.010		MG/M3
8707038	04	ORBO	NITRIC ACID	.039		MG/M3
8707041	04	ORBO	NITRIC ACID	.003	<	MG/M3
8707042	04	ORBO	NITRIC ACID	.001	<	MG/M3
8706B020	04	ORBO	NITRIC ACID	.000	ND	
8706015	04	ORBO	NITRIC ACID	.000	ND	
8706B015	04	ORBO	NITRIC ACID	.000	ND	
8705B038	04	ORBO	NITRIC ACID	.000	ND	
8705B028	04	ORBO	NITRIC ACID	.000	ND	
8705B042	04	ORBO	NITRIC ACID	.000	ND	
8706B002	04	ORBO	NITRIC ACID	.000	ND	
8705B021	04	ORBO	NITRIC ACID	.000	ND	
8706B028	04	ORBO	NITRIC ACID	.000	ND	
8707B011	04	ORBO	NITRIC ACID	.000	ND	
8707B025	04	ORBO	NITRIC ACID	.000	ND	
8707B034	04	ORBO	NITRIC ACID	.000	ND	
8707B009	04	ORBO	NITRIC ACID	.000	ND	
8707B006	04	ORBO	NITRIC ACID	.000	ND	
8706B031	04	ORBO	NITRIC ACID	.000	ND	
8705020	04	ORBO	SULFURIC ACID	.000	ND	
8705021	04	ORBO	SULFURIC ACID	.000	ND	
8705026	04	ORBO	SULFURIC ACID	.000	ND	
8705028	04	ORBO	SULFURIC ACID	.000	ND	
8705037	04	ORBO	SULFURIC ACID	.000	ND	
8705038	04	ORBO	SULFURIC ACID	.000	ND	
8705039	04	ORBO	SULFURIC ACID	.000	ND	
8705040	04	ORBO	SULFURIC ACID	.000	ND	
8705041	04	ORBO	SULFURIC ACID	.000	ND	
8706001	04	ORBO	SULFURIC ACID	.000	ND	
8706003	04	ORBO	SULFURIC ACID	.000	ND	
8706012	04	ORBO	SULFURIC ACID	.000	ND	
8706013	04	ORBO	SULFURIC ACID	.000	ND	
8706014	04	ORBO	SULFURIC ACID	.000	ND	
8706019	04	ORBO	SULFURIC ACID	.000	ND	
8706020	04	ORBO	SULFURIC ACID	.000	ND	
8706023	04	ORBO	SULFURIC ACID	.000	ND	

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLEND	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8706025	04	ORBO	SULFURIC ACID	.000	ND	
8706026	04	ORBO	SULFURIC ACID	.000	ND	
8706027	04	ORBO	SULFURIC ACID	.000	ND	
8706028	04	ORBO	SULFURIC ACID	.000	ND	
8706031	04	ORBO	SULFURIC ACID	.010	<	MG/M3
8706032	04	ORBO	SULFURIC ACID	.000	ND	
8706033	04	ORBO	SULFURIC ACID	.010	<	MG/M3
8706034	04	ORBO	SULFURIC ACID	.000	ND	
8706035	04	ORBO	SULFURIC ACID	.010	<	MG/M3
8706036	04	ORBO	SULFURIC ACID	.000	ND	
8707006	04	ORBO	SULFURIC ACID	.010	<	MG/M3
8707007	04	ORBO	SULFURIC ACID	.010	<	MG/M3
8707008	04	ORBO	SULFURIC ACID	.010	<	MG/M3
8707009	04	ORBO	SULFURIC ACID	.010	<	MG/M3
8707011	04	ORBO	SULFURIC ACID	.010	<	MG/M3
8707012	04	ORBO	SULFURIC ACID	.000	ND	
8707013	04	ORBO	SULFURIC ACID	.000	ND	
8707023	04	ORBO	SULFURIC ACID	.000	ND	
8707024	04	ORBO	SULFURIC ACID	.010	<	MG/M3
8707025	04	ORBO	SULFURIC ACID	.000	ND	
8707026	04	ORBO	SULFURIC ACID	.000	ND	
8707027	04	ORBO	SULFURIC ACID	.000	ND	
8707032	04	ORBO	SULFURIC ACID	.000	ND	
8707033	04	ORBO	SULFURIC ACID	.000	ND	
8707034	04	ORBO	SULFURIC ACID	.000	ND	
8707037	04	ORBO	SULFURIC ACID	.020	<	MG/M3
8707038	04	ORBO	SULFURIC ACID	.006		MG/M3
8707041	04	ORBO	SULFURIC ACID	.006		MG/M3
8707042	04	ORBO	SULFURIC ACID	.020	<	MG/M3
8706B020	04	ORBO	SULFURIC ACID	.000	ND	
8706015	04	ORBO	SULFURIC ACID	.000	ND	
8706B015	04	ORBO	SULFURIC ACID	.000	ND	
8706B004	04	ORBO	SULFURIC ACID	.000	ND	
8705B038	04	ORBO	SULFURIC ACID	.000	ND	
8705B028	04	ORBO	SULFURIC ACID	.000	ND	
8705B042	04	ORBO	SULFURIC ACID	.000	ND	
8706B002	04	ORBO	SULFURIC ACID	.000	ND	
8705B021	04	ORBO	SULFURIC ACID	.000	ND	
8706B028	04	ORBO	SULFURIC ACID	.000	ND	
8707B011	04	ORBO	SULFURIC ACID	.000	ND	
8707B025	04	ORBO	SULFURIC ACID	.000	ND	
8707B034	04	ORBO	SULFURIC ACID	.000	ND	ND
8707B009	04	ORBO	SULFURIC ACID	.100		UG/T
8707B006	04	ORBO	SULFURIC ACID	.100	<	UG/T
8706B031	04	ORBO	SULFURIC ACID	.600		UG/T
8705016	04	CHAR	XXXXX	1.000	<	PPM
8705017	04	CHAR	XXXXX	1.000	<	PPM
8705023	04	CHAR	XXXXX	2.000		PPM
8705024	04	CHAR	XXXXX	1.000	<	PPM
8705025	04	CHAR	XXXXX	1.000	<	PPM
8705034	04	CHAR	XXXXX	.000	ND	

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8705043	04	CHAR	XXXXX	.000	ND	
8706016	04	CHAR	XXXXX	.000	ND	
8706018	04	CHAR	XXXXX	1.000	<	PPM
8707003	04	CHAR	XXXXX	.000	ND	
8707004	04	CHAR	XXXXX	.000	ND	
8707010	04	CHAR	XXXXX	1.000	<	PPM
8707017	04	CHAR	XXXXX	1.000	<	PPM
8707018	04	CHAR	XXXXX	1.000	<	PPM
8707019	04	CHAR	XXXXX	1.000	<	PPM
8707020	04	CHAR	XXXXX	1.000	<	PPM
8707021	04	CHAR	XXXXX	1.000	<	PPM
8707029	04	CHAR	XXXXX	1.000	<	PPM
8707036	04	CHAR	XXXXX	2.000		PPM
ZX4981	04	OVM	XXXXX	.000	ND	
ZX4979	04	OVM	XXXXX	.000	ND	
ZX4972	04	OVM	XXXXX	.068		
ZX4970	04	OVM	XXXXX	.000	ND	
ZX4936	04	OVM	XXXXX	.000	ND	
ZX4922	04	OVM	XXXXX	.000	ND	
ZX4913	04	OVM	XXXXX	.030		MG
ZX4858	04	OVM	XXXXX	.000	ND	
ZX4790	04	OVM	XXXXX	.000	ND	
ZX4699	04	OVM	XXXXX	.000	ND	
ZX4699	04	OVM	XXXXX	.036		MG
ZX4449	04	OVM	XXXXX	.000	ND	
ZX4379	04	OVM	XXXXX	.000	ND	
ZX4363	04	OVM	XXXXX	.000	ND	
ZX4299	04	OVM	XXXXX	.000	ND	
CE7785	04	OVM	XXXXX	.019		MG
CE7734	04	OVM	XXXXX	.000	ND	
CE7661	04	OVM	XXXXX	.021		MG
CE7640	04	OVM	XXXXX	.000	ND	
CD9867	04	OVM	XXXXX	.000	ND	
CD9849	04	OVM	XXXXX	.000	ND	
CD7603	04	OVM	XXXXX	.000	ND	
8706017	04	CHAR	XXXXX	.000	ND	
CD7293	04	OVM	XXXXX	.000	ND	
8706B018	04	CHAR	XXXXX	.000	ND	
8705B043	04	CHAR	XXXXX	.000	ND	
ZX4254	04	OVM	XXXXX	.000	ND	
8705B034	04	CHAR	XXXXX	.000	ND	
8705B023	04	CHAR	XXXXX	.000	ND	
ZX4835	04	OVM	XXXXX	.000	ND	
ZX4835	04	OVM	XXXXX	.000	ND	
ZX4835	04	OVM	XXXXX	.102		MG
8705B032	04	CHAR	XXXXX	.000	ND	
8705B032	04	CHAR	XXXXX	.000	ND	
8705B042	04	ORBO	XXXXX	2.000		UG/T
8706B002	04	ORBO	XXXXX	11.300	<	UG/T
8705B021	04	ORBO	XXXXX	.500		UG/T
8707B003	04	CHAR	XXXXX	.000	ND	

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8707B003	04	CHAR	XXXXX	.000	ND	
8707005	04	CHAR	XXXXX	.000	ND	
8707005	04	CHAR	XXXXX	.000	ND	
8707B010	04	CHAR	XXXXX	.000	ND	
8707B010	04	CHAR	XXXXX	.000	ND	
8707B018	04	CHAR	XXXXX	.000	ND	
CD9756	04	OVM	XXXXX	.135		MG
8706B02B	04	ORBO	XXXXX	2.000		UG/T
YD7982	04	OVM	XXXXX	.102		MG
YD7982	04	OVM	XXXXX	1.900		UG/T
CD9969	04	OVM	XXXXX	.000		
8707B014	04	CHAR	XXXXX	.000	ND	
8707043	04	CHAR	XXXXX	.300	<	PPM
8707B036	04	CHAR	XXXXX	.000	ND	PPM
8705019	04	CHAR	XYLENE	2.000		PPM
8705022	04	CHAR	XYLENE	1.000	<	PPM
8705027	04	CHAR	XYLENE	1.000	<	PPM
8705032	04	CHAR	XYLENE	1.000	<	PPM
8705035	04	CHAR	XYLENE	1.000	<	PPM
8705042	04	CHAR	XYLENE	1.000		PPM
8705044	04	CHAR	XYLENE	1.000		PPM
8706005	04	CHAR	XYLENE	1.000	<	PPM
8706006	04	CHAR	XYLENE	1.000	<	PPM
8706021	04	CHAR	XYLENE	1.000	<	PPM
8706022	04	CHAR	XYLENE	1.000	<	PPM
8706024	04	CHAR	XYLENE	1.000	<	PPM
8706038	04	CHAR	XYLENE	1.000	<	PPM
8706039	04	CHAR	XYLENE	1.000	<	PPM
8707010	04	CHAR	XYLENE	1.000	<	PPM
8707017	04	CHAR	XYLENE	1.000	<	PPM
8707018	04	CHAR	XYLENE	1.000	<	PPM
8707022	04	CHAR	XYLENE	1.000	<	PPM
8707028	04	CHAR	XYLENE	1.000	<	PPM
ZX4944	04	OVM	XYLENE	.969		PPM
ZX4933	04	OVM	XYLENE	.237		PPM
ZX4864	04	OVM	XYLENE	.340		PPM
ZX4840	04	OVM	XYLENE	1.053		PPM
ZX4738	04	OVM	XYLENE	1.322		PPM
ZX4439	04	OVM	XYLENE	.711		PPM
ZX4310	04	OVM	XYLENE	.168		PPM
CE7817	04	OVM	XYLENE	.196		PPM
CE7789	04	OVM	XYLENE	.351		PPM
CE7669	04	OVM	XYLENE	.099		PPM
CE7647	04	OVM	XYLENE	.000	TR	PPM
CD9891	04	OVM	XYLENE	.092		PPM
CD9795	04	OVM	XYLENE	.033		PPM
CD8264	04	OVM	XYLENE	.108		PPM
CD7603	04	OVM	XYLENE	.000	ND	PPM
CD7501	04	OVM	XYLENE	.081		PPM
CD7490	04	OVM	XYLENE	.000	ND	PPM
CD7462	04	OVM	XYLENE	.116		PPM

IH AIR SAMPLE RESULTS AS OF 04/19/88
FOR BUILDING 04

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
CD7447	04	OVM	XYLENE	.066		PPM
8706B021	04	CHAR	XYLENE	.000	ND	
CD7293	04	OVM	XYLENE	.000	ND	PPM
8706B009	04	CHAR	XYLENE	.000	ND	
8706B006	04	CHAR	XYLENE	.000	ND	
ZX4317	04	OVM	XYLENE	.000	ND	PPM
8705B043	04	CHAR	XYLENE	.000	ND	
8705B034	04	CHAR	XYLENE	.000	ND	
8705B027	04	CHAR	XYLENE	.000	ND	
8705B023	04	CHAR	XYLENE	.000	ND	
8705B032	04	CHAR	XYLENE	.000	ND	
8707B010	04	CHAR	XYLENE	.000	ND	
8707B018	04	CHAR	XYLENE	.000	ND	
8706B037	04	CHAR	XYLENE	.000	ND	
CD9969	04	OVM	XYLENE	.000	ND	PPM
8707B022	04	CHAR	XYLENE	.000	ND	
CD7767	04	OVM	XYLENE	.000	ND	PPM

IN AIR SAMPLE RESULTS AS OF 05/02/88
FOR BUILDING 51

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	DI	UNIT
8809468	51	OVM	XYLENE	.973		PPM
8805877	51	OVM	XYLENE	.000	ND	
8809561	51	OVM	XYLENE	.050	ND	
8810018	51	OVM	XYLENE	.000	ND	
8803049	51	CHAR	XYLENE	1.000	<	PPM
8803057	51	CHAR	XYLENE	1.000	<	PPM
8803062	51	CHAR	XYLENE	1.000	<	PPM
8803025	51	CHAR	XYLENE	1.000	<	PPM
8803023	51	CHAR	XYLENE	2.000		PPM
8803031	51	CHAR	XYLENE	1.000	<	PPM
8803037	51	CHAR	XYLENE	.000	ND	
8803038	51	CHAR	XYLENE	1.000	<	PPM
8803013	51	CHAR	XYLENE	1.000		PPM
8803009	51	CHAR	XYLENE	.000	ND	
8803014	51	CHAR	XYLENE	4.000		PPM
8803B001	51	CHAR	XYLENE	.000	ND	

IH AIR SAMPLE RESULT AVERAGES
FOR BUILDING 51 AS OF 05/02/86

CHEMICAL	AVG CONC	MAX CONC	MIN CONC	SAMPLING COUNT
ACETIC ACID	.263	.29%	.22%	3
ACETONE	1.136	2.[illegible]	.74%	4
HCL	.072	.31%	.010	38
HYDROFLUORIC ACID	.110	.150	.070	2
IPA	1.195	5.00%	1.00%	27
N-BUTYL ACETATE	1.000	1.000	1.000	1
NITRIC ACID	.010	.010	.010	2
SULFURIC ACID	2.355	4.69%	.020	2
XYLENE	1.726	6.597	.247	13

ALL SOLVENT RESULTS ARE IN PPM
ALL ACID RESULTS ARE IN MG/M3

IH AIR SAMPLE RESULTS AS OF 05/02/89
FOR BUILDING 51

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	DI	UNIT
CS2880	51	OVM	1,1,1 TRICHLOROETHANE	.000	ND	
CS3040	51	OVM	1,1,1 TRICHLOROETHANE	.000	ND	
8803059	51	CHAR	1,1,1 TRICHLOROETHANE	.000	ND	
8803022	51	CHAR	1,1,1 TRICHLOROETHANE	.000	ND	
8803024	51	CHAR	1,1,1 TRICHLOROETHANE	.000	ND	
8803005	51	CHAR	1,1,1 TRICHLOROETHANE	.000	ND	
8803059	51	ORBO	ACETIC ACID	.000	ND	
8803060	51	ORBO	ACETIC ACID	.000	ND	
8803063	51	ORBO	ACETIC ACID	.000	ND	
8803064	51	ORBO	ACETIC ACID	.000	ND	
8803065	51	ORBO	ACETIC ACID	.000	ND	
8803066	51	ORBO	ACETIC ACID	.000	ND	
8803067	51	ORBO	ACETIC ACID	.000	ND	
8803068	51	ORBO	ACETIC ACID	.000	ND	
8803069	51	ORBO	ACETIC ACID	.000	ND	
8803070	51	ORBO	ACETIC ACID	.000	ND	
8803071	51	ORBO	ACETIC ACID	.000	ND	
8803072	51	ORBO	ACETIC ACID	.000	ND	
8803024	51	ORBO	ACETIC ACID	.000	ND	
8803035	51	ORBO	ACETIC ACID	.000	ND	
8803036	51	ORBO	ACETIC ACID	.280	<	MG/M3
8803039	51	ORBO	ACETIC ACID	.000	ND	
8803040	51	ORBO	ACETIC ACID	.000	ND	
8803041	51	ORBO	ACETIC ACID	.000	ND	
8803042	51	ORBO	ACETIC ACID	.000	ND	
8803043	51	ORBO	ACETIC ACID	.000	ND	
8803044	51	ORBO	ACETIC ACID	.299	<	MG/M3
8803045	51	ORBO	ACETIC ACID	.220	<	MG/M3
8803046	51	ORBO	ACETIC ACID	.000	ND	
8803047	51	ORBO	ACETIC ACID	.000	ND	
8803011	51	ORBO	ACETIC ACID	.000	ND	
8803012	51	ORBO	ACETIC ACID	.000	ND	
8803015	51	ORBO	ACETIC ACID	.000	ND	
8803016	51	ORBO	ACETIC ACID	.000	ND	
8803017	51	ORBO	ACETIC ACID	.000	ND	
8803018	51	ORBO	ACETIC ACID	.000	ND	
8803019	51	ORBO	ACETIC ACID	.000	ND	
8803020	51	ORBO	ACETIC ACID	.000	ND	
8803021	51	ORBO	ACETIC ACID	.000	ND	
8803022	51	ORBO	ACETIC ACID	.000	ND	
8803023	51	ORBO	ACETIC ACID	.000	ND	
8803B011	51	ORBO	ACETIC ACID	.100	<	UG/T
8803B063	51	ORBO	ACETIC ACID	.000	ND	
CR6261	51	OVM	ACETONE	.000	ND	
CR9461	51	OVM	ACETONE	.000	ND	
CR6273	51	OVM	ACETONE	.743		PPM
CR6466	51	OVM	ACETONE	.000	ND	
CS2638	51	OVM	ACETONE	.000	ND	
CS2880	51	OVM	ACETONE	.000	ND	
CS3040	51	OVM	ACETONE	.000	ND	
CS3055	51	OVM	ACETONE	.000	ND	

IR AIR SAMPLE RESULTS AS OF 05/02/88
FOR BUILDING 51

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	DI	UNIT
CS2936	51	OVM	ACETONE	.000	ND	
CS2921	51	OVM	ACETONE	.000	ND	
CQ9871	51	OVM	ACETONE	.000	ND	
CQ9618	51	OVM	ACETONE	.000	ND	
CQ9647	51	OVM	ACETONE	.000	ND	
CQ9549	51	OVM	ACETONE	.000	ND	
CQ9230	51	OVM	ACETONE	.000	ND	
CQ9645	51	OVM	ACETONE	.000	ND	
CQ9513	51	OVM	ACETONE	.000	ND	
CQ9605	51	OVM	ACETONE	.000	ND	
CQ9624	51	OVM	ACETONE	.000	ND	
CQ9768	51	OVM	ACETONE	.000	ND	
CQ9278	51	OVM	ACETONE	.000	ND	
CR5031	51	OVM	ACETONE	.000	ND	
CQ9986	51	OVM	ACETONE	.000	ND	
CR5098	51	OVM	ACETONE	.000	ND	
CQ9790	51	OVM	ACETONE	.000	ND	
CQ9860	51	OVM	ACETONE	.000	ND	
CQ9555	51	OVM	ACETONE	.000	ND	
CQ9500	51	OVM	ACETONE	.000	ND	
CQ9176	51	OVM	ACETONE	.000	ND	
CQ9537	51	OVM	ACETONE	.000	ND	
CQ9447	51	OVM	ACETONE	.000	ND	
CQ9636	51	OVM	ACETONE	.000	ND	
CQ9276	51	OVM	ACETONE	.000	ND	
CQ9486	51	OVM	ACETONE	.000	ND	
CR5021	51	OVM	ACETONE	.000	ND	
CQ9521	51	OVM	ACETONE	.000	ND	
CQ9877	51	OVM	ACETONE	.000	ND	
CQ9561	51	OVM	ACETONE	.000	ND	
CS3068	51	OVM	ACETONE	.000	ND	
8803049	51	CHAR	ACETONE	.000	ND	
8803050	51	CHAR	ACETONE	.000	ND	
8803051	51	CHAR	ACETONE	.000	ND	
8803052	51	CHAR	ACETONE	1.000	<	PPM
8803054	51	CHAR	ACETONE	.000	ND	
8803055	51	CHAR	ACETONE	.000	ND	
8803056	51	CHAR	ACETONE	.000	ND	
8803057	51	CHAR	ACETONE	.000	ND	
8803061	51	CHAR	ACETONE	.000	ND	
8803062	51	CHAR	ACETONE	.000	ND	
8803007	51	CHAR	ACETONE	.000	ND	
8803025	51	CHAR	ACETONE	.000	ND	
8803026	51	CHAR	ACETONE	.000	ND	
8803027	51	CHAR	ACETONE	.000	ND	
8803028	51	CHAR	ACETONE	.000	ND	
8803029	51	CHAR	ACETONE	.000	ND	
8803030	51	CHAR	ACETONE	.000	ND	
8803031	51	CHAR	ACETONE	1.000	<	PPM
8803032	51	CHAR	ACETONE	.000	ND	
8803033	51	CHAR	ACETONE	.000	ND	

IH AIR SAMPLE RESULTS AS OF 05/02/88
FOR BUILDING 51

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	DI	CUNIT
8803014	51	CHAR	ACETONE	.000	ND	
8803007	51	CHAR	ACETONE	.000	ND	
8803033	51	CHAR	ACETONE	2.000		PPM
8803001	51	CHAR	ACETONE	.000	ND	
8803002	51	CHAR	ACETONE	.000	ND	
8803003	51	CHAR	ACETONE	.000	ND	
8803004	51	CHAR	ACETONE	.000	ND	
8803005	51	CHAR	ACETONE	.000	ND	
8803006	51	CHAR	ACETONE	.000	ND	
8803008	51	CHAR	ACETONE	.000	ND	
8803009	51	CHAR	ACETONE	.000	ND	
8803010	51	CHAR	ACETONE	.000	ND	
8803013	51	CHAR	ACETONE	.000	ND	
8803014	51	CHAR	ACETONE	.000	ND	
8803B001	51	CHAR	ACETONE	.000	ND	
CK3524	51	OVM	CELLOSOLVE	.000	ND	
CR6466	51	OVM	CELLOSOLVE	.000	ND	
CS3055	51	OVM	CELLOSOLVE	.000	ND	
CS2936	51	OVM	CELLOSOLVE	.000	ND	
CQ9549	51	OVM	CELLOSOLVE	.000	ND	
CQ9645	51	OVM	CELLOSOLVE	.000	ND	
CQ9605	51	OVM	CELLOSOLVE	.000	ND	
CQ9278	51	OVM	CELLOSOLVE	.000	ND	
CR5031	51	OVM	CELLOSOLVE	.000	ND	
CR5098	51	OVM	CELLOSOLVE	.000	ND	
CQ9447	51	OVM	CELLOSOLVE	.000	ND	
CQ9466	51	OVM	CELLOSOLVE	.000	ND	
CQ9877	51	OVM	CELLOSOLVE	.000	ND	
CQ9561	51	OVM	CELLOSOLVE	.000	ND	
CS3068	51	OVM	CELLOSOLVE	.000	ND	
8803049	51	CHAR	CELLOSOLVE	.000	ND	
8803057	51	CHAR	CELLOSOLVE	.000	ND	
8803025	51	CHAR	CELLOSOLVE	.000	ND	
8803031	51	CHAR	CELLOSOLVE	.000	ND	
8803037	51	CHAR	CELLOSOLVE	.000	ND	
8803038	51	CHAR	CELLOSOLVE	.000	ND	
8803003	51	CHAR	CELLOSOLVE	.000	ND	
8803009	51	CHAR	CELLOSOLVE	.000	ND	
8803014	51	CHAR	CELLOSOLVE	.000	ND	
88038001	51	CHAR	CELLOSOLVE	.000	ND	
CK3524	51	OVM	CELLOSOLVE ACETATE	.000	ND	
CR6466	51	OVM	CELLOSOLVE ACETATE	.000	ND	
CS3055	51	OVM	CELLOSOLVE ACETATE	.000	ND	
CS2936	51	OVM	CELLOSOLVE ACETATE	.000	ND	
CQ9549	51	OVM	CELLOSOLVE ACETATE	.000	ND	
CQ9645	51	OVM	CELLOSOLVE ACETATE	.000	ND	
CQ9605	51	OVM	CELLOSOLVE ACETATE	.000	ND	
CQ9278	51	OVM	CELLOSOLVE ACETATE	.000	ND	
CR5031	51	OVM	CELLOSOLVE ACETATE	.000	ND	
CR5098	51	OVM	CELLOSOLVE ACETATE	.000	ND	
CQ9447	51	OVM	CELLOSOLVE ACETATE	.000	ND	

IH AIR SAMPLE RESULTS AS OF 05/02/88
FOR BUILDING 51

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	DI	CUNIT
CB9466	51	OVM	CELLOSOLVE ACETATE	.000	ND	
CB9477	51	OVM	CELLOSOLVE ACETATE	.000	ND	
CB9561	51	OVM	CELLOSOLVE ACETATE	.000	ND	
CS3065	51	OVM	CELLOSOLVE ACETATE	.000	ND	
8803049	51	CHAR	CELLOSOLVE ACETATE	.000	ND	
8803057	51	CHAR	CELLOSOLVE ACETATE	.000	ND	
8803062	51	CHAR	CELLOSOLVE ACETATE	.000	ND	
8E03025	51	CHAR	CELLOSOLVE ACETATE	.000	ND	
8803031	51	CHAR	CELLOSOLVE ACETATE	.000	ND	
8803037	51	CHAR	CELLOSOLVE ACETATE	.000	ND	
8803038	51	CAHR	CELLOSOLVE ACETATE	.000	ND	
8803002	51	CHAR	CELLOSOLVE ACETATE	.000	ND	
8803009	51	CHAR	CELLOSOLVE ACETATE	.000	ND	
8803014	51	CHAR	CELLOSOLVE ACETATE	.000	ND	
8803B001	51	CHAR	CELLOSOLVE ACETATE	.000	ND	
CR6273	51	OVM	ETHYL BENZENE	.000	ND	
CS2800	51	OVM	ETHYL BENZENE	.000	ND	
CS3040	51	OVM	ETHYL BENZENE	.000	ND	
CS2936	51	OVM	ETHYL BENZENE	.000	ND	
CB9549	51	OVM	ETHYL BENZENE	.000	ND	
CB9605	51	OVM	ETHYL BENZENE	.000	ND	
CB9278	51	OVM	ETHYL BENZENE	.000	ND	
CR5031	51	OVM	ETHYL BENZENE	.000	ND	
CB9500	51	OVM	ETHYL BENZENE	.000	ND	
CB9176	51	OVM	ETHYL BENZENE	.000	ND	
CB9447	51	OVM	ETHYL BENZENE	.000	ND	
CS3069	51	OVM	ETHYL BENZENE	.000	ND	
8803062	51	CHAR	ETHYL BENZENE	.000	ND	
8803027	51	CHAR	ETHYL BENZENE	.000	ND	
8803031	51	CHAR	ETHYL BENZENE	.000	ND	
8803038	51	CAHR	ETHYL BENZENE	.000	ND	
8803001	51	CHAR	ETHYL BENZENE	.000	ND	
8803005	51	CHAR	ETHYL BENZENE	.000	ND	
8803008	51	CHAR	ETHYL BENZENE	.000	ND	
8803014	51	CHAR	ETHYL BENZENE	.000	ND	
8803B001	51	CHAR	ETHYL BENZENE	.000	ND	
8803059	51	ORBD	HCL	.010	<	MG/M3
8803060	51	ORBD	HCL	.010		MG/M3
8803063	51	ORBD	HCL	.030	<	MG/M3
8803064	51	ORBD	HCL	.010		MG/M3
8803065	51	ORBD	HCL	.050	<	MG/M3
8803066	51	ORBD	HCL	.010	<	MG/M3
8803067	51	ORBD	HCL	.010		MG/M3
8803068	51	ORBD	HCL	.010		MG/M3
8803069	51	ORBD	HCL	.010	<	MG/M3
8803070	51	ORBD	HCL	.030		MG/M3
8803071	51	ORBD	HCL	.010	<	MG/M3
8803072	51	ORBD	HCL	.020		MG/M3
8803024	51	ORBD	HCL	.170	<	MG/M3
8803035	51	ORBD	HCL	.010	<	MG/M3
8803036	51	ORBD	HCL	.010	<	MG/M3

IH AIR SAMPLE RESULTS AS OF 05/02/88
FOR BUILDING 51

SAMPLENO	SITE	MEDIA	CHEMICAL	COND	DI	UNIT
8803039	51	ORBD	HCL	.260	<	MG/M3
8803040	51	ORBD	HCL	.010	<	MG/M3
8803041	51	ORBD	HCL	.210	<	MG/M3
8803042	51	ORBD	HCL	.210	<	MG/M3
8803043	51	ORBD	HCL	.010	<	MG/M3
8803044	51	ORBD	HCL	.010	<	MG/M3
8803045	51	ORBD	HCL	.250	<	MG/M3
8803046	51	ORBD	HCL	.230	<	MG/M3
8803047	51	ORBD	HCL	.010	<	MG/M3
8803011	51	ORBD	HCL	.140	<	MG/M3
8803012	51	ORBD	HCL	.010	<	MG/M3
8803015	51	ORBD	HCL	.020		MG/M3
8803016	51	ORBD	HCL	.160	<	MG/M3
8803017	51	ORBD	HCL	.180	<	MG/M3
8803018	51	ORBD	HCL	.040		MG/M3
8803019	51	ORBD	HCL	.080	<	MG/M3
8803020	51	ORBD	HCL	.010	<	MG/M3
8803021	51	ORBD	HCL	.010	<	MG/M3
8803022	51	ORBD	HCL	.060	<	MG/M3
8803023	51	ORBD	HCL	.010		MG/M3
88038011	51	ORBD	HCL	.100	<	UG/T
88038063	51	ORBD	HCL	.100	<	UG/T
8803059	51	ORBD	HYDROFLUORIC ACID	.000	ND	
8803060	51	ORBD	HYDROFLUORIC ACID	.000	ND	
8803063	51	ORBD	HYDROFLUORIC ACID	.000	ND	
8803064	51	ORBD	HYDROFLUORIC ACID	.000	ND	
8803065	51	ORBD	HYDROFLUORIC ACID	.150	<	MG/M3
8803066	51	ORBD	HYDROFLUORIC ACID	.000	ND	
8803067	51	ORBD	HYDROFLUORIC ACID	.000	ND	
8803069	51	ORBD	HYDROFLUORIC ACID	.000	ND	
8803069	51	ORBD	HYDROFLUORIC ACID	.070	<	MG/M3
8803070	51	ORBD	HYDROFLUORIC ACID	.000	ND	
8803071	51	ORBD	HYDROFLUORIC ACID	.000	ND	
8803072	51	ORBD	HYDROFLUORIC ACID	.000	ND	
88038063	51	ORBD	HYDROFLUORIC ACID	.000	ND	
CR6281	51	OVM	IPA	1.910		PPM
CR9461	51	OVM	IPA	.000	ND	
CR6272	51	OVM	IPA	.000	ND	
CR6466	51	OVM	IPA	1.072		PPM
CS2638	51	OVM	IPA	.000	ND	
CS2880	51	OVM	IPA	.000	ND	
CS3040	51	OVM	IPA	.000	ND	
CS3055	51	OVM	IPA	.000	ND	
CS2936	51	OVM	IPA	.000	ND	
CS2921	51	OVM	IPA	.000	ND	
CR9871	51	OVM	IPA	.000	ND	
CR9616	51	OVM	IPA	.000	ND	
CR9649	51	OVM	IPA	.000	ND	
CR9549	51	OVM	IPA	.000	ND	
CR9232	51	OVM	IPA	.000	ND	
CR9645	51	OVM	IPA	.000	ND	

IH AIR SAMPLE RESULTS AS OF 05/02/89
FOR BUILDING 51

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	DI	UNIT
C09518	51	GVM	IPA	.000	ND	
C09605	51	GVM	IPA	.000	ND	
C09624	51	GVM	IPA	.000	ND	
C09762	51	GVM	IPA	.000	ND	
C09279	51	GVM	IPA	.000	ND	
CR5031	51	GVM	IPA	.000	ND	
C09966	51	GVM	IPA	.000	ND	
CR5098	51	GVM	IPA	.000	ND	
C09790	51	GVM	IPA	.000	ND	
C09860	51	GVM	IPA	.000	ND	
C09535	51	GVM	IPA	.000	ND	
C09500	51	GVM	IPA	.000	ND	
C09176	51	GVM	IPA	.000	ND	
C09537	51	GVM	IPA	.000	ND	
C09447	51	GVM	IPA	.000	ND	
C09636	51	GVM	IPA	.000	ND	
C09276	51	GVM	IPA	.000	ND	
CR5021	51	GVM	IPA	.000	ND	
C09521	51	GVM	IPA	.000	ND	
C09877	51	GVM	IPA	.000	ND	
C09561	51	GVM	IPA	.000	ND	
C53068	51	GVM	IPA	.000	ND	
8803049	51	CHAR	IPA	1.000	<	PPM
8803050	51	CHAR	IPA	1.000	<	PPM
8803051	51	CHAR	IPA	1.000	<	PPM
8803052	51	CHAR	IPA	1.000	<	PPM
8803054	51	CHAR	IPA	.000	ND	
8803055	51	CHAR	IPA	1.000	<	PPM
8803056	51	CHAR	IPA	1.000	<	PPM
8803057	51	CHAR	IPA	1.000	<	PPM
8803061	51	CHAR	IPA	1.000	<	PPM
8803062	51	CHAR	IPA	1.000		PPM
8803007	51	CHAR	IPA	.000	ND	
8803025	51	CHAR	IPA	.000	ND	
8803026	51	CHAR	IPA	.000	ND	
8803027	51	CHAR	IPA	1.000	<	PPM
8803028	51	CHAR	IPA	1.000	<	PPM
8803029	51	CHAR	IPA	.000	ND	
8803030	51	CHAR	IPA	.000	ND	
8803031	51	CHAR	IPA	1.000		PPM
8803032	51	CHAR	IPA	5.000		PPM
8803033	51	CHAR	IPA	1.000	<	PPM
8803034	51	CHAR	IPA	1.000	<	PPM
8803037	51	CHAR	IPA	.000	ND	
8803038	51	CHAR	IPA	1.000	<	PPM
8803001	51	CHAR	IPA	1.000	<	PPM
8803002	51	CHAR	IPA	1.000	<	PPM
8803004	51	CHAR	IPA	1.000	<	PPM
8803005	51	CHAR	IPA	1.000	<	PPM
8803006	51	CHAR	IPA	1.000	<	PPM
8803008	51	CHAR	IPA	1.000	<	PPM

IH AIR SAMPLE RESULTS AS OF 05/02/88
FOR BUILDING 51

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	D1	CUNIT
8803009	51	CHAR	IPA	1.000	<	PPM
8803010	51	CHAR	IPA	1.000	<	PPM
8803013	51	CHAR	IPA	1.000	<	PPM
8803014	51	CHAR	IPA	.000	ND	
88038001	51	CHAR	IPA	.000	ND	
CR3529	51	OVM	N-BUTYL ACETATE	.000	ND	
CR6488	51	OVM	N-BUTYL ACETATE	.000	ND	
CS3055	51	OVM	N-BUTYL ACETATE	.000	ND	
CS2936	51	OVM	N-BUTYL ACETATE	.000	ND	
CQ9549	51	OVM	N-BUTYL ACETATE	.000	ND	
CQ9645	51	OVM	N-BUTYL ACETATE	.000	ND	
CQ9608	51	OVM	N-BUTYL ACETATE	.000	ND	
CQ9278	51	OVM	N-BUTYL ACETATE	.000	ND	
CR5021	51	OVM	N-BUTYL ACETATE	.000	ND	
CR5093	51	OVM	N-BUTYL ACETATE	.000	ND	
CQ9447	51	OVM	N-BUTYL ACETATE	.000	ND	
CQ9486	51	OVM	N-BUTYL ACETATE	.000	ND	
CQ9877	51	OVM	N-BUTYL ACETATE	.000	ND	
CQ9561	51	OVM	N-BUTYL ACETATE	.000	ND	
CS3068	51	OVM	N-BUTYL ACETATE	.000	ND	
8803049	51	CHAR	N-BUTYL ACETATE	.000	ND	
8803057	51	CHAR	N-BUTYL ACETATE	1.000	<	PPM
8803062	51	CHAR	N-BUTYL ACETATE	.000	ND	
8803025	51	CHAR	N-BUTYL ACETATE	.000	ND	
8803031	51	CHAR	N-BUTYL ACETATE	.000	ND	
8803037	51	CHAR	N-BUTYL ACETATE	.000	ND	
8803038	51	CHAR	N-BUTYL ACETATE	.000	ND	
8803003	51	CHAR	N-BUTYL ACETATE	.000	ND	
8803009	51	CHAR	N-BUTYL ACETATE	.000	ND	
8803014	51	CHAR	N-BUTYL ACETATE	.000	ND	
88038001	51	CHAR	N-BUTYL ACETATE	.000	ND	
8803059	51	ORBO	NITRIC ACID	.000	ND	
8803060	51	ORBO	NITRIC ACID	.000	ND	
8803063	51	ORBO	NITRIC ACID	.000	ND	
8803064	51	ORBO	NITRIC ACID	.010		MG/M3
8803065	51	ORBO	NITRIC ACID	.000	ND	
8803066	51	ORBO	NITRIC ACID	.000	ND	
8803067	51	ORBO	NITRIC ACID	.000	ND	
8803068	51	ORBO	NITRIC ACID	.010		MG/M3
8803069	51	ORBO	NITRIC ACID	.000	ND	
8803070	51	ORBO	NITRIC ACID	.000	ND	
8803071	51	ORBO	NITRIC ACID	.000	ND	
8803072	51	ORBO	NITRIC ACID	.000	ND	
8803024	51	ORBO	NITRIC ACID	.000	ND	
8803035	51	ORBO	NITRIC ACID	.000	ND	
8803036	51	ORBO	NITRIC ACID	.000	ND	
8803039	51	ORBO	NITRIC ACID	.000	ND	
8803040	51	ORBO	NITRIC ACID	.000	ND	
8803041	51	ORBO	NITRIC ACID	.000	ND	
8803042	51	ORBO	NITRIC ACID	.000	ND	
8803043	51	ORBO	NITRIC ACID	.000	ND	

IH AIR SAMPLE RESULTS AS OF 05/02/90
FOR BUILDING 51

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	DI	UNIT
8803044	51	ORBC	NITRIC ACID	.000	ND	
8803045	51	ORBC	NITRIC ACID	.000	ND	
8803046	51	ORBC	NITRIC ACID	.000	ND	
8803047	51	ORBC	NITRIC ACID	.000	ND	
8803048	51	ORBC	NITRIC ACID	.000	ND	
8803012	51	ORBC	NITRIC ACID	.000	ND	
8803013	51	ORBC	NITRIC ACID	.000	ND	
8803014	51	ORBC	NITRIC ACID	.000	ND	
8803017	51	ORBC	NITRIC ACID	.000	ND	
8803018	51	ORBC	NITRIC ACID	.000	ND	
8803019	51	ORBC	NITRIC ACID	.000	ND	
8803020	51	ORBC	NITRIC ACID	.000	ND	
8803021	51	ORBC	NITRIC ACID	.000	ND	
8803022	51	ORBC	NITRIC ACID	.000	ND	
8803023	51	ORBC	NITRIC ACID	.000	ND	
8803011	51	ORBC	NITRIC ACID	.100	<	UG/T
8803083	51	ORBC	NITRIC ACID	.300		UG/T
8803063	51	ORBC	PHOSPHORIC	.000	ND	
8803064	51	ORBC	PHOSPHORIC	.000	ND	
8803065	51	ORBC	PHOSPHORIC	.000	ND	
8803066	51	ORBC	PHOSPHORIC	.000	ND	
8803067	51	ORBC	PHOSPHORIC	.000	ND	
8803068	51	ORBC	PHOSPHORIC	.000	ND	
8803069	51	ORBC	PHOSPHORIC	.000	ND	
8803070	51	ORBC	PHOSPHORIC	.000	ND	
8803071	51	ORBC	PHOSPHORIC	.000	ND	
8803072	51	ORBC	PHOSPHORIC	.000	ND	
8803024	51	ORBC	PHOSPHORIC	.000	ND	
8803035	51	ORBC	PHOSPHORIC	.000	ND	
8803036	51	ORBC	PHOSPHORIC	.000	ND	
8803039	51	ORBC	PHOSPHORIC	.000	ND	
8803040	51	ORBC	PHOSPHORIC	.000	ND	
8803041	51	ORBC	PHOSPHORIC	.000	ND	
8803042	51	ORBC	PHOSPHORIC	.000	ND	
8803043	51	ORBC	PHOSPHORIC	.000	ND	
8803044	51	ORBC	PHOSPHORIC	.000	ND	
8803045	51	ORBC	PHOSPHORIC	.000	ND	
8803046	51	ORBC	PHOSPHORIC	.000	ND	
8803047	51	ORBC	PHOSPHORIC	.000	ND	
8803011	51	ORBC	PHOSPHORIC	.000	ND	
8803012	51	ORBC	PHOSPHORIC	.000	ND	
8803015	51	ORBC	PHOSPHORIC	.000	ND	
8803016	51	ORBC	PHOSPHORIC	.000	ND	
8803017	51	ORBC	PHOSPHORIC	.000	ND	
8803018	51	ORBC	PHOSPHORIC	.000	ND	
8803019	51	ORBC	PHOSPHORIC	.000	ND	
8803020	51	ORBC	PHOSPHORIC	.000	ND	
8803021	51	ORBC	PHOSPHORIC	.000	ND	
8803022	51	ORBC	PHOSPHORIC	.000	ND	
8803023	51	ORBC	PHOSPHORIC	.000	ND	

In Situ SAMPLE RESULTS AS OF 05/02/86
FOR BUILDING 51

SAMPLENO	SITE	MEDIA	CHEMICAL	CONC	C1	UNIT
8803B011	51	ORBO	PHENOL-TOTAL	.100	<	UG/T
8803B063	51	ORBO	PHENOLIC ID	.000	ND	
8803B59	51	ORBO	SULFURIC ACID	.000	ND	
8803B11	51	ORBO	SULFURIC ACID	.000	ND	
8803B07	51	ORBO	SULFURIC ACID	.000	ND	
8803B84	51	ORBO	SULFURIC ACID	.000	ND	
8803B03	51	ORBO	SULFURIC ACID	4.890		MG/M3
8803B6	51	ORBO	SULFURIC ACID	.000	ND	
8803B07	51	ORBO	SULFURIC ACID	.000	ND	
8803B45	51	ORBO	SULFURIC ACID	.000	ND	
8803B69	51	ORBO	SULFURIC ACID	.000	ND	
8803B07	51	ORBO	SULFURIC ACID	.000	ND	
8803B07	51	ORBO	SULFURIC ACID	.000	ND	
8803B72	51	ORBO	SULFURIC ACID	.000	ND	
8803B24	51	ORBO	SULFURIC ACID	.000	ND	
8803B25	51	ORBO	SULFURIC ACID	.000	ND	
8803B36	51	ORBO	SULFURIC ACID	.000	ND	
8803B39	51	ORBO	SULFURIC ACID	.000	ND	
8803B40	51	ORBO	SULFURIC ACID	.000	ND	
8803B41	51	ORBO	SULFURIC ACID	.000	ND	
8803B42	51	ORBO	SULFURIC ACID	.000	ND	
8803B43	51	ORBO	SULFURIC ACID	.000	ND	
8803B44	51	ORBO	SULFURIC ACID	.000	ND	
8803B45	51	ORBO	SULFURIC ACID	.000	ND	
8803B46	51	ORBO	SULFURIC ACID	.000	ND	
8803B47	51	ORBO	SULFURIC ACID	.000	ND	
8803B11	51	ORBO	SULFURIC ACID	.000	ND	
8803B12	51	ORBO	SULFURIC ACID	.000	ND	
8803B15	51	ORBO	SULFURIC ACID	.000	ND	
8803B16	51	ORBO	SULFURIC ACID	.000	ND	
8803B17	51	ORBO	SULFURIC ACID	.000	ND	
8803B18	51	ORBO	SULFURIC ACID	.000	ND	
8803B19	51	ORBO	SULFURIC ACID	.000	ND	
8803B20	51	ORBO	SULFURIC ACID	.000	ND	
8803B21	51	ORBO	SULFURIC ACID	.000	ND	
8803B22	51	ORBO	SULFURIC ACID	.000	ND	
8803B23	51	ORBO	SULFURIC ACID	.020		MG/M3
8803B011	51	ORBO	SULFURIC ACID	.100	<	UG/T
8803B063	51	ORBO	SULFURIC ACID	.000	ND	
8803E062	51	ORBO	XXXXX	.000	ND	
CR3524	51	OVM	XYLENE	6.597		PPM
CR8466	51	OVM	XYLENE	.000	ND	
CS3955	51	OVM	XYLENE	.000	ND	
CS2936	51	OVM	XYLENE	.000	ND	
CB9549	51	OVM	XYLENE	.000	ND	
CB9645	51	OVM	XYLENE	.000	ND	
CB9605	51	OVM	XYLENE	.000	ND	
CB9278	51	OVM	XYLENE	.000	ND	
CR5021	51	OVM	XYLENE	.267		PPM
CR5078	51	OVM	XYLENE	1.602		PPM
CB9447	51	OVM	XYLENE	.000	ND	

HARRIS SEMICONDUCTOR

ATTACHMENT II

AIR DISPERSION MODEL

6.0 SUB-PROJECT - IV - PRELIMINARY AIR DISPERSION MODELING

6.1 Summary

A Gaussian air dispersion computer model was applied to Harris Corporation supplied data inputs to predict maximum ground level plume concentrations at Harris' Palm Bay plant. Twelve compounds were identified in the stack emissions and each compound with its respective data was modeled. The maximum results of this modeling for each compound are shown in Table 6-1. None of the modeled compounds exceeded off-property permit guidelines. The off-property permit guidelines are 1/100 and 1/300 of OSHA (PEL) values for non-carcinogenic and carcinogenic compounds, respectively. The comparison of permit guideline values and calculated values is shown in Table 6-2.

6.2 Model Description

The air dispersion model utilized for prediction of ground level plume concentrations was the model developed for the EPA - Region VI Emergency Response Branch, by Roy F. Weston, Inc. (March 4, 1986). The model is a Gaussian air dispersion model based on a binomial continuous plume dispersion equation providing an estimate of ground level pollutant concentrations. It must be noted that the diffusion computation method used in this model may be used to provide best estimates but not infallible predictions.

The air dispersion model is based on the following assumptions:

- Continuous emission from the source or emission times equal to, or greater than, travel times to the downwind position under consideration, so that diffusion in the direction of transport may be neglected.

- The material diffused is a stable gas or aerosol (less than 20 microns diameter) which remains suspended in the air over long periods of time.

- None of the material emitted is removed from the plume as it moves downwind and there is complete reflection at the ground,

- The mean wind direction specifies the X-axis, and a mean wind speed representative of the diffusing layer is chosen,

- The plume constituents are distributed normally in both the cross-wind and vertical directions, and

- The dispersion parameters represent sampling periods of about 10 minutes; thus, the parameters are conservative for releases significantly greater than 10 minutes and may underestimate dispersion at sampling times less than 10 minutes.

This computer air dispersion model requires the following data inputs:

- Air stability criteria (A-F, A-most unstable, D-neutral, F-most stable),
- Chemical compound name,
- Emission rate in lb/hr,
- Average wind speed in MPH,
- Concentration units in ppm or mg/M3, and
- Effective source height in ft.

Note: A weighted stack height was used in the model instead of an effective stack height. The use of the lesser weighted stack height would give greater ground level plume concentrations.

Some limitations of the computer model are that it can only consider a single point source, a single pollutant, and cannot take into account influences of nearby buildings or plumes.

6.3 Methodology

The data used for the air dispersion modeling were collected from the August and November, 1987 Source Test Reports prepared by Air Consulting and Engineering for the Harris Corporation. The following assumptions were made with these data in their application to the model:

- Analyses for F54S01 emissions would also reflect F54S02 emissions,
- Analyses for F54S03 emissions would also reflect F54S04 emissions,
- Due to the request for worst-case modeling, duplicate data for F54S03 were screened for the greatest concentration of analyzed compounds and those data used in modeling.

As mentioned above, a worst-case scenario was requested. This request, coupled with the inherent model limitations, required assumptions and manipulations of the available data. The eight stacks of consideration, buildings 51 and 54, were treated as a single point source. Using a centroid calculation based on geographic location, stack height, and air flow, a weighted location and height was determined and this new location and height was used as the worst-case single point source. The location of the centroid stack is in the middle of the north end of building 56. The weighted height of the model stack is 53.1 feet.

Assumptions pertaining to the available data were that all air flows were additive, all similar compounds found in the analyses of the several stack emissions were additive, and the maximum concentration found in either test was used to calculate the emission weight flow for a given compound. To calculate the emission weight flows needed for the computer model, the following was done:

- A weight ratio of contained carbon to compound weight was calculated for each identified compound.

- The compound analysis results and this ratio were used to calculate the weight fraction of carbon for a compound in a given stack test.

- Supplied FID data gave the total equivalent carbon concentration in each stack test.

- The carbon weight fraction for each compound was multiplied by the total equivalent carbon concentration, and divided by the carbon/compound weight ratio to give each compound concentration for each stack test.

- These compound concentrations were multiplied by the stack airflow to give the compound emission rates for each compound in each stack test.

  These calculation results are shown in Table 6-3.

- The total compound emission rates for each compound input to the air dispersion model were the sum of the worst cases for the eight stacks for that compound.

It was determined through application of the computer model that the greatest ground level plume concentrations occurred consistently when air stability criteria was neutral and average wind speed was 0.5 MPH. With these program settings, the maximum ground level plume concentrations were located approximately 800 feet downwind from the point source, regardless of the compound emission rate.

For all the compounds identified in the Source Test Reports, a computer model was run with the following data inputs:

- Point source height of 53.1 feet (weighted height),
- Compound emission rate in lb/hr,
- Wind speeds at 0.5, 1.0, and 5.0 MPH, and
- Stability class at A, B, C, D, E, and F.

6.4 Tables

Table 6-1

Computer Model Input Data to Calculate Maximum Ground Level Concentrations

Stack Height (ft): 53.1
Average Wind Speed (mph): 0.5
Air Stability Class: Neutral

Compound Name	Stack Emission (in lb/hr)	Model Calculated Maximum Ground Level Plume Concentrations (in mg/M3)
Acetone	29.20	7.69
1,1,1-Trichloroethane	15.10	3.98
Xylenes	5.12	1.35
Tetrachloroethylene	5.10	1.34
1, 2-Dichlorobenzene	2.24	0.59
Ethylbenzene	0.653	0.17
Freon 113	0.442	0.12
1, 1-Dichloroethane	0.156	0.0410
Toluene	0.0109	0.0029
Benzene	0.00763	0.0020
Trichloroethylene	0.00484	0.0013
Chloroform	0.0000886	0.000023

Note: Computer model predicted that the maximum ground level plume concentration would occur with an average wind speed of 0.5 MPH and at neutral air stability. The location of the maximum would lie approximately 800 feet downwind from the point source.

Table 6-2

Approximate Air Dispersion Modeling Summary

Compound	OSHA Permissible Exposure Levels (mg/M3)	Carcinogenic	Off-Property Permit Guidelines (mg/M3)	Maximum Ground Level Plume Concentration (mg/M3)
Acetone	2,400		24.00	7.69
1,1,1-Trichloroethane	1,900	Yes	6.33	3.98
Xylenes	435		4.35	1.35
Tetrachloroethylene	670	Yes	2.23	1.34
1,2-Dichlorobenzene	300		3.00	0.59
Ethylbenzene	435		4.35	0.17
Freon 113	7,600		76.00	0.12
1,1-Dichloroethane	400		4.00	0.0410
Toluene	750		7.50	0.0029
Benzene	3	Yes	0.01	0.0020
Trichloroethylene	540	Yes	1.80	0.0013
Chloroform	240	Yes	0.80	0.000023

6.5 Plumes

GROUND LEVEL CONCENTRATION PLUME FROM POINT SOURCE AIR RELEASE

(FEET)	3578 FT		SOURCE		3578 FT
200			1		
400			3		
600			151		
800			151		
1000			252		
1200			252		
1400			13431		
1600			13431		
1800			13431		
2000			12321		
2200			12321		
2400			1123211		
2600			1122211		
2800			1122211		
3000			1122211		
3200			1122211		
3400			1122211		
3600			1122211		
3800			1112111		
4000			1112111		
4200			1111111		
4400			1111111		
4600			111111111		
4800			111111111		
5000			111111111		
5200			111111111		
5400			111111111		
5600			111111111		
5800			111111111		
6000			111111111		
6200			111111111		
6400			111111111		
6600			111111111		
6800			111111111		
7000			111111111		
7200			111111111		
7400			1111111		
7600			1111111		
7800			1111111		
8000			1111111		
8200			1111111		
8400			1111111		
8600			1111111		
8800			1111111		
9000			1111111		
9200			11111		
9400			11111		
9600			11111		
9800			11111		
10000			111		
10200			111		
10400					
10600					

LEGEND

1 -	.3845504	TO	.9229209	MG/M3
2 -	.9229209	TO	3.076403	MG/M3
3 -	3.076403	TO	4.614605	MG/M3
4 -	4.614605	TO	6.152807	MG/M3
5 -	6.152807	TO	7.691008	MG/M3

GRID INCREMENTS---> Y= 119.27 FEET AND X= 200 FEET

COMMENTS	:	
COMPOUND	:	ACETONE
STABILITY CLASS	:	D
EFFECTIVE SOURCE HEIGHT, FT	:	53.100
EMISSION RATE, LB/HR	:	29.200
AVERAGE WIND SPEED, MPH	:	0.500

GROUND LEVEL CONCENTRATION PLUME FROM POINT SOURCE AIR RELEASE

```
          3578 FT                    SOURCE                    3578 FT
(FEET)    +---------+---------+---------0---------+---------+---------+
 200                                     1
 400                                     3
 600                                   151
 800                                   151
1000                                   252
1200                                   252
1400                                 13431
1600                                 13431
1800                                 13431
2000                                 12321
2200                                 12321
2400                                123211
2600                                122211
2800                                122211
3000                                122211
3200                                122211
3400                                122211
3600                                122211
3800                                112111
4000                                112111
4200                                111111
4400                                111111
4600                               111111111
4800                               111111111
5000                               111111111
5200                               111111111
5400                               111111111
5600                               111111111
5800                               111111111
6000                               111111111
6200                               111111111
6400                               111111111
6600                               111111111
6800                               111111111
7000                               111111111
7200                               111111111
7400                                111111
7600                                111111
7800                                111111
8000                                111111
8200                                111111
8400                                111111
8600                                111111
8800                                111111
9000                                111111
9200                                 11111
9400                                 11111
9600                                 11111
9800                                 11111
10000                                 111
10200                                 111
10400
10600
```

LEGEND

1 - .19886 TO .4772639 MG/M3
2 - .4772639 TO 1.59088 MG/M3
3 - 1.59088 TO 2.38632 MG/M3
4 - 2.38632 TO 3.181759 MG/M3
5 - 3.181759 TO 3.977199 MG/M3

GRID INCREMENTS---> Y= 119.27 FEET AND X= 200 FEET

COMMENTS	:	
COMPOUND	:	TRICHLOROETHANE
STABILITY CLASS	:	D
EFFECTIVE SOURCE HEIGHT, FT	:	53.100
EMISSION RATE, LB/HR	:	15.100
AVERAGE WIND SPEED, MPH	:	0.500

GROUND LEVEL CONCENTRATION PLUME FROM POINT SOURCE AIR RELEASE

```
                3578 FT                      SOURCE                      3578 FT
(FEET)  +---------+---------+---------+---------0---------+---------+---------+
 200                                        1
 400                                        3
 600                                      151
 800                                      151
 1000                                     252
 1200                                     252
 1400                                   13431
 1600                                   13431
 1800                                   13431
 2000                                   12321
 2200                                   12321
 2400                                 1123211
 2600                                 1122211
 2800                                 1122211
 3000                                 1122211
 3200                                 1122211
 3400                                 1122211
 3600                                 1122211
 3800                                 1112111
 4000                                 1112111
 4200                                 1111111
 4400                                 1111111
 4600                               111111111
 4800                               111111111
 5000                               111111111
 5200                               111111111
 5400                               111111111
 5600                               111111111
 5800                               111111111
 6000                               111111111
 6200                               111111111
 6400                               111111111
 6600                               111111111
 6800                               111111111
 7000                               111111111
 7200                               111111111
 7400                                1111111
 7600                                1111111
 7800                                1111111
 8000                                1111111
 8200                                1111111
 8400                                1111111
 8600                                1111111
 8800                                1111111
 9000                                1111111
 9200                                 11111
 9400                                 11111
 9600                                 11111
 9800                                 11111
 10000                                 111
 10200                                 111
 10400
 10600
```

LEGEND

1 -	6.742801E-02	TO	.1618272	MG/M3
2 -	.1618272	TO	.5394241	MG/M3
3 -	.5394241	TO	.8091361	MG/M3
4 -	.8091361	TO	1.078848	MG/M3
5 -	1.078848	TO	1.34856	MG/M3

GRID INCREMENTS---> Y= 119.27 FEET AND X= 200 FEET

COMMENTS	:	
COMPOUND	:	XYLENES
STABILITY CLASS	:	D
EFFECTIVE SOURCE HEIGHT, FT	:	53.100
EMISSION RATE, LB/HR	:	5.120
AVERAGE WIND SPEED, MPH	:	0.500

GROUND LEVEL CONCENTRATION PLUME FROM POINT SOURCE AIR RELEASE

(FEET)	3578 FT	SOURCE	3578 FT
200		1	
400		3	
600		151	
800		151	
1000		252	
1200		252	
1400		13431	
1600		13431	
1800		13431	
2000		12321	
2200		12321	
2400		1123211	
2600		1122211	
2800		1122211	
3000		1122211	
3200		1122211	
3400		1122211	
3600		1122211	
3800		1112111	
4000		1112111	
4200		1111111	
4400		1111111	
4600		111111111	
4800		111111111	
5000		111111111	
5200		111111111	
5400		111111111	
5600		111111111	
5800		111111111	
6000		111111111	
6200		111111111	
6400		111111111	
6600		111111111	
6800		111111111	
7000		111111111	
7200		111111111	
7400		1111111	
7600		1111111	
7800		1111111	
8000		1111111	
8200		1111111	
8400		1111111	
8600		1111111	
8800		1111111	
9000		1111111	
9200		11111	
9400		11111	
9600		11111	
9800		11111	
10000		111	
10200		111	
10400			
10600			

LEGEND

1 - 6.716461E-02 TO .1611951 MG/M3
2 - .1611951 TO .537317 MG/M3
3 - .537317 TO .8059754 MG/M3
4 - .8059754 TO 1.074634 MG/M3
5 - 1.074634 TO 1.343292 MG/M3

GRID INCREMENTS---> Y= 119.27 FEET AND X= 200 FEET

COMMENTS	:	
COMPOUND	:	TETRACHLOROETHYLENE
STABILITY CLASS	:	D
EFFECTIVE SOURCE HEIGHT, FT	:	53.100
EMISSION RATE, LB/HR	:	5.100
AVERAGE WIND SPEED, MPH	:	0.500

GROUND LEVEL CONCENTRATION PLUME FROM POINT SOURCE AIR RELEASE

```
          3578 FT                    SOURCE                    3578 FT
(FEET)    +---------+---------+---------O---------+---------+---------+
 200                                    1
 400                                    3
 600                                   151
 800                                   151
 1000                                  252
 1200                                  252
 1400                                 13431
 1600                                 13431
 1800                                 13431
 2000                                 12321
 2200                                 12321
 2400                                1123211
 2600                                1122211
 2800                                1122211
 3000                                1122211
 3200                                1122211
 3400                                1122211
 3600                                1122211
 3800                                1112111
 4000                                1112111
 4200                                1111111
 4400                                1111111
 4600                               111111111
 4800                               111111111
 5000                               111111111
 5200                               111111111
 5400                               111111111
 5600                               111111111
 5800                               111111111
 6000                               111111111
 6200                               111111111
 6400                               111111111
 6600                               111111111
 6800                               111111111
 7000                               111111111
 7200                               111111111
 7400                                1111111
 7600                                1111111
 7800                                1111111
 8000                                1111111
 8200                                1111111
 8400                                1111111
 8600                                1111111
 8800                                1111111
 9000                                1111111
 9200                                 11111
 9400                                 11111
 9600                                 11111
 9800                                 11111
 10000                                 111
 10200                                 111
 10400
 10600
```

LEGEND

1 - 2.949975E-02 TO .0707994 MG/M3
2 - .0707994 TO .235998 MG/M3
3 - .235998 TO .353997 MG/M3
4 - .353997 TO .4719961 MG/M3
5 - .4719961 TO .589995 MG/M3

GRID INCREMENTS---> Y= 119.27 FEET AND X= 200 FEET

COMMENTS	:	
COMPOUND	:	DICHLOROBENZENE
STABILITY CLASS	:	D
EFFECTIVE SOURCE HEIGHT, FT	:	53.100
EMISSION RATE, LB/HR	:	2.240
AVERAGE WIND SPEED, MPH	:	0.500

GROUND LEVEL CONCENTRATION PLUME FROM POINT SOURCE AIR RELEASE

(FEET)	3578 FT		SOURCE		3578 FT
200			1		
400			3		
600			151		
800			151		
1000			252		
1200			252		
1400			13431		
1600			13431		
1800			13431		
2000			12321		
2200			12321		
2400			1123211		
2600			1122211		
2800			1122211		
3000			1122211		
3200			1122211		
3400			1122211		
3600			1122211		
3800			1112111		
4000			1112111		
4200			1111111		
4400			1111111		
4600			111111111		
4800			111111111		
5000			111111111		
5200			111111111		
5400			111111111		
5600			111111111		
5800			111111111		
6000			111111111		
6200			111111111		
6400			111111111		
6600			111111111		
6800			111111111		
7000			111111111		
7200			111111111		
7400			1111111		
7600			1111111		
7800			1111111		
8000			1111111		
8200			1111111		
8400			1111111		
8600			1111111		
8800			1111111		
9000			1111111		
9200			11111		
9400			11111		
9600			11111		
9800			11111		
10000			111		
10200			111		
10400					
10600					

LEGEND

1 - 8.599704E-03 TO 2.063929E-02 MG/M3
2 - 2.063929E-02 TO 6.879763E-02 MG/M3
3 - 6.879763E-02 TO .1031965 MG/M3
4 - .1031965 TO .1375953 MG/M3
5 - .1375953 TO .1719941 MG/M3

GRID INCREMENTS---> Y= 119.27 FEET AND X= 200 FEET

COMMENTS	:	
COMPOUND	:	ETHYLBENZENE
STABILITY CLASS	:	D
EFFECTIVE SOURCE HEIGHT, FT	:	53.100
EMISSION RATE, LB/HR	:	0.653
AVERAGE WIND SPEED, MPH	:	0.500

GROUND LEVEL CONCENTRATION PLUME FROM POINT SOURCE AIR RELEASE

```
          3578 FT                    SOURCE                    3578 FT
(FEET)    +---------+---------+---------0---------+---------+---------+
200                                      1
400                                      3
600                                    151
800                                    151
1000                                   252
1200                                   252
1400                                 13431
1600                                 13431
1800                                 13431
2000                                 12321
2200                                 12321
2400                               1123211
2600                               1122211
2800                               1122211
3000                               1122211
3200                               1122211
3400                               1122211
3600                               1122211
3800                               1112111
4000                               1112111
4200                               1111111
4400                               1111111
4600                              111111111
4800                              111111111
5000                              111111111
5200                              111111111
5400                              111111111
5600                              111111111
5800                              111111111
6000                              111111111
6200                              111111111
6400                              111111111
6600                              111111111
6800                              111111111
7000                              111111111
7200                              111111111
7400                               1111111
7600                               1111111
7800                               1111111
8000                               1111111
8200                               1111111
8400                               1111111
8600                               1111111
8800                               1111111
9000                               1111111
9200                                11111
9400                                11111
9600                                11111
9800                                11111
10000                                 111
10200                                 111
10400
10600
```

LEGEND

1 - 5.820934E-03 TO 1.397024E-02 MG/M3
2 - 1.397024E-02 TO 4.656747E-02 MG/M3
3 - 4.656747E-02 TO 6.985121E-02 MG/M3
4 - 6.985121E-02 TO 9.313493E-02 MG/M3
5 - 9.313493E-02 TO .1164187 MG/M3

GRID INCREMENTS---> Y= 119.27 FEET AND X= 200 FEET

COMMENTS	
COMPOUND	FREON 113
STABILITY CLASS	D
EFFECTIVE SOURCE HEIGHT, FT	53.100
EMISSION RATE, LB/HR	0.442
AVERAGE WIND SPEED, MPH	0.500

GROUND LEVEL CONCENTRATION PLUME FROM POINT SOURCE AIR RELEASE

```
          3578 FT                    SOURCE                    3578 F
(FEET)    +---------+---------+---------0---------+---------+---------+
 200                                    1
 400                                    3
 600                                  151
 800                                  151
1000                                  252
1200                                  252
1400                                13431
1600                                13431
1800                                13431
2000                                12321
2200                                12321
2400                               1123211
2600                               1122211
2800                               1122211
3000                               1122211
3200                               1122211
3400                               1122211
3600                               1122211
3800                               1112111
4000                               1112111
4200                               1111111
4400                               1111111
4600                              111111111
4800                              111111111
5000                              111111111
5200                              111111111
5400                              111111111
5600                              111111111
5800                              111111111
6000                              111111111
6200                              111111111
6400                              111111111
6600                              111111111
6800                              111111111
7000                              111111111
7200                              111111111
7400                                1111111
7600                                1111111
7800                                1111111
8000                                1111111
8200                                1111111
8400                                1111111
8600                                1111111
8800                                1111111
9000                                1111111
9200                                 11111
9400                                 11111
9600                                 11111
9800                                 11111
10000                                  111
10200                                  111
10400
10600
```

LEGEND

1 -	2.054447E-03	TO	4.930673E-03	MG/M3
2 -	4.930673E-03	TO	1.643558E-02	MG/M3
3 -	1.643558E-02	TO	2.465337E-02	MG/M3
4 -	2.465337E-02	TO	3.287115E-02	MG/M3
5 -	3.287115E-02	TO	4.108894E-02	MG/M3

GRID INCREMENTS---> Y= 119.27 FEET AND X= 200 FEET

COMMENTS	:	
COMPOUND	:	DICHLOROETHANE
STABILITY CLASS	:	D
EFFECTIVE SOURCE HEIGHT, FT	:	53.100
EMISSION RATE, LB/HR	:	0.156
AVERAGE WIND SPEED, MPH	:	0.500

GROUND LEVEL CONCENTRATION PLUME FROM POINT SOURCE AIR RELEASE

(FEET)	3578 FT		SOURCE		3578 FT
200			1		
400			3		
600			151		
800			151		
1000			252		
1200			252		
1400			13431		
1600			13431		
1800			13431		
2000			12321		
2200			12321		
2400			1123211		
2600			1122211		
2800			1122211		
3000			1122211		
3200			1122211		
3400			1122211		
3600			1122211		
3800			1112111		
4000			1112111		
4200			1111111		
4400			1111111		
4600			111111111		
4800			111111111		
5000			111111111		
5200			111111111		
5400			111111111		
5600			111111111		
5800			111111111		
6000			111111111		
6200			111111111		
6400			111111111		
6600			111111111		
6800			111111111		
7000			111111111		
7200			111111111		
7400			1111111		
7600			1111111		
7800			1111111		
8000			1111111		
8200			1111111		
8400			1111111		
8600			1111111		
8800			1111111		
9000			1111111		
9200			11111		
9400			11111		
9600			11111		
9800			11111		
10000			111		
10200			111		
10400					
10600					

LEGEND

1 - 1.435479E-04 TO 3.44515E-04 MG/M3
2 - 3.44515E-04 TO 1.148383E-03 MG/M3
3 - 1.148383E-03 TO 1.722575E-03 MG/M3
4 - 1.722575E-03 TO 2.296767E-03 MG/M3
5 - 2.296767E-03 TO 2.870958E-03 MG/M3

GRID INCREMENTS---> Y= 119.27 FEET AND X= 200 FEET

COMMENTS	:	
COMPOUND	:	TOLUENE
STABILITY CLASS	:	D
EFFECTIVE SOURCE HEIGHT, FT	:	53.100
EMISSION RATE, LB/HR	:	0.011
AVERAGE WIND SPEED, MPH	:	0.500

GROUND LEVEL CONCENTRATION PLUME FROM POINT SOURCE AIR RELEASE

(FEET)	3578 FT		SOURCE		3578 FT
200			1		
400			3		
600			151		
800			151		
1000			252		
1200			252		
1400			13431		
1600			13431		
1800			13431		
2000			12321		
2200			12321		
2400			1123211		
2600			1122211		
2800			1122211		
3000			1122211		
3200			1122211		
3400			1122211		
3600			1122211		
3800			1112111		
4000			1112111		
4200			1111111		
4400			1111111		
4600			111111111		
4800			111111111		
5000			111111111		
5200			111111111		
5400			111111111		
5600			111111111		
5800			111111111		
6000			111111111		
6200			111111111		
6400			111111111		
6600			111111111		
6800			111111111		
7000			111111111		
7200			111111111		
7400			1111111		
7600			1111111		
7800			1111111		
8000			1111111		
8200			1111111		
8400			1111111		
8600			1111111		
8800			1111111		
9000			1111111		
9200			11111		
9400			11111		
9600			11111		
9800			11111		
10000			111		
10200			111		
10400					
10600					

LEGEND

1 -	1.004835E-04	TO	2.411605E-04	MG/M3
2 -	2.411605E-04	TO	8.038683E-04	MG/M3
3 -	8.038683E-04	TO	1.205802E-03	MG/M3
4 -	1.205802E-03	TO	1.607737E-03	MG/M3
5 -	1.607737E-03	TO	2.009671E-03	MG/M3

GRID INCREMENTS---> Y= 119.27 FEET AND X= 200 FEET

COMMENTS	:	
COMPOUND	:	BENZENE
STABILITY CLASS	:	D
EFFECTIVE SOURCE HEIGHT, FT	:	53.100
EMISSION RATE, LB/HR	:	0.008
AVERAGE WIND SPEED, MPH	:	0.500

GROUND LEVEL CONCENTRATION PLUME FROM POINT SOURCE AIR RELEASE

```
          3578 FT                    SOURCE                    3578 F
(FEET)    +---------+---------+---------0---------+---------+---------+
 200                                    1
 400                                    3
 600                                  151
 800                                  151
1000                                  252
1200                                  252
1400                                13431
1600                                13431
1800                                13431
2000                                12321
2200                                12321
2400                              1123211
2600                              1122211
2800                              1122211
3000                              1122211
3200                              1122211
3400                              1122211
3600                              1122211
3800                              1112111
4000                              1112111
4200                              1111111
4400                              1111111
4600                            111111111
4800                            111111111
5000                            111111111
5200                            111111111
5400                            111111111
5600                            111111111
5800                            111111111
6000                            111111111
6200                            111111111
6400                            111111111
6600                            111111111
6800                            111111111
7000                            111111111
7200                            111111111
7400                              1111111
7600                              1111111
7800                              1111111
8000                              1111111
8200                              1111111
8400                              1111111
8600                              1111111
8800                              1111111
9000                              1111111
9200                                11111
9400                                11111
9600                                11111
9800                                11111
10000                                 111
10200                                 111
10400
10600
```

LEGEND

1 -	6.374055E-05	TO	1.529773E-04	MG/M3
2 -	1.529773E-04	TO	5.099244E-04	MG/M3
3 -	5.099244E-04	TO	7.648866E-04	MG/M3
4 -	7.648866E-04	TO	1.019849E-03	MG/M3
5 -	1.019849E-03	TO	1.274811E-03	MG/M3

GRID INCREMENTS---> Y= 119.27 FEET AND X= 200 FEET

COMMENTS	:	
COMPOUND	:	TRICHLOROETHYLENE
STABILITY CLASS	:	D
EFFECTIVE SOURCE HEIGHT, FT	:	53.100
EMISSION RATE, LB/HR	:	0.005
AVERAGE WIND SPEED, MPH	:	0.500

GROUND LEVEL CONCENTRATION PLUME FROM POINT SOURCE AIR RELEASE

(FEET)	3578 FT			SOURCE		3578 F
200				1		
400				3		
600				151		
800				151		
1000				252		
1200				252		
1400				13431		
1600				13431		
1800				13431		
2000				12321		
2200				12321		
2400				1123211		
2600				1122211		
2800				1122211		
3000				1122211		
3200				1122211		
3400				1122211		
3600				1122211		
3800				1112111		
4000				1112111		
4200				1111111		
4400				1111111		
4600				111111111		
4800				111111111		
5000				111111111		
5200				111111111		
5400				111111111		
5600				111111111		
5800				111111111		
6000				111111111		
6200				111111111		
6400				111111111		
6600				111111111		
6800				111111111		
7000				111111111		
7200				111111111		
7400				1111111		
7600				1111111		
7800				1111111		
8000				1111111		
8200				1111111		
8400				1111111		
8600				1111111		
8800				1111111		
9000				1111111		
9200				11111		
9400				11111		
9600				11111		
9800				11111		
10000				111		
10200				111		
10400						
10600						

LEGEND

1 -	1.166821E-06	TO	2.800369E-06	MG/M3
2 -	2.800369E-06	TO	9.334564E-06	MG/M3
3 -	9.334564E-06	TO	1.400185E-05	MG/M3
4 -	1.400185E-05	TO	1.866913E-05	MG/M3
5 -	1.866913E-05	TO	2.333641E-05	MG/M3

GRID INCREMENTS---> Y= 119.27 FEET AND X= 200 FEET

COMMENTS	:	
COMPOUND	:	CHLOROFORM
STABILITY CLASS	:	D
EFFECTIVE SOURCE HEIGHT, FT	:	53.100
EMISSION RATE, LB/HR	:	~~0.000~~ 8.86 E-05
AVERAGE WIND SPEED, MPH	:	0.500

HARRIS SEMICONDUCTOR

ATTACHMENT III

COGENERATION SCHEDULE

HARRIS SEMICONDUCTOR

COGENERATION PLANT

MILESTONE PROJECT SCHEDULE

FEASIBILITY STUDY COMPLETE	MAY 20, 1988
AIR EMISSIONS PERMIT SUBMITTAL	OCTOBER 1988
START PLANT CONSTRUCTION	MARCH 1989
CONSTRUCTION COMPLETLION	JANUARY 1990
COMMERCIAL OPERATION	MARCH 1990

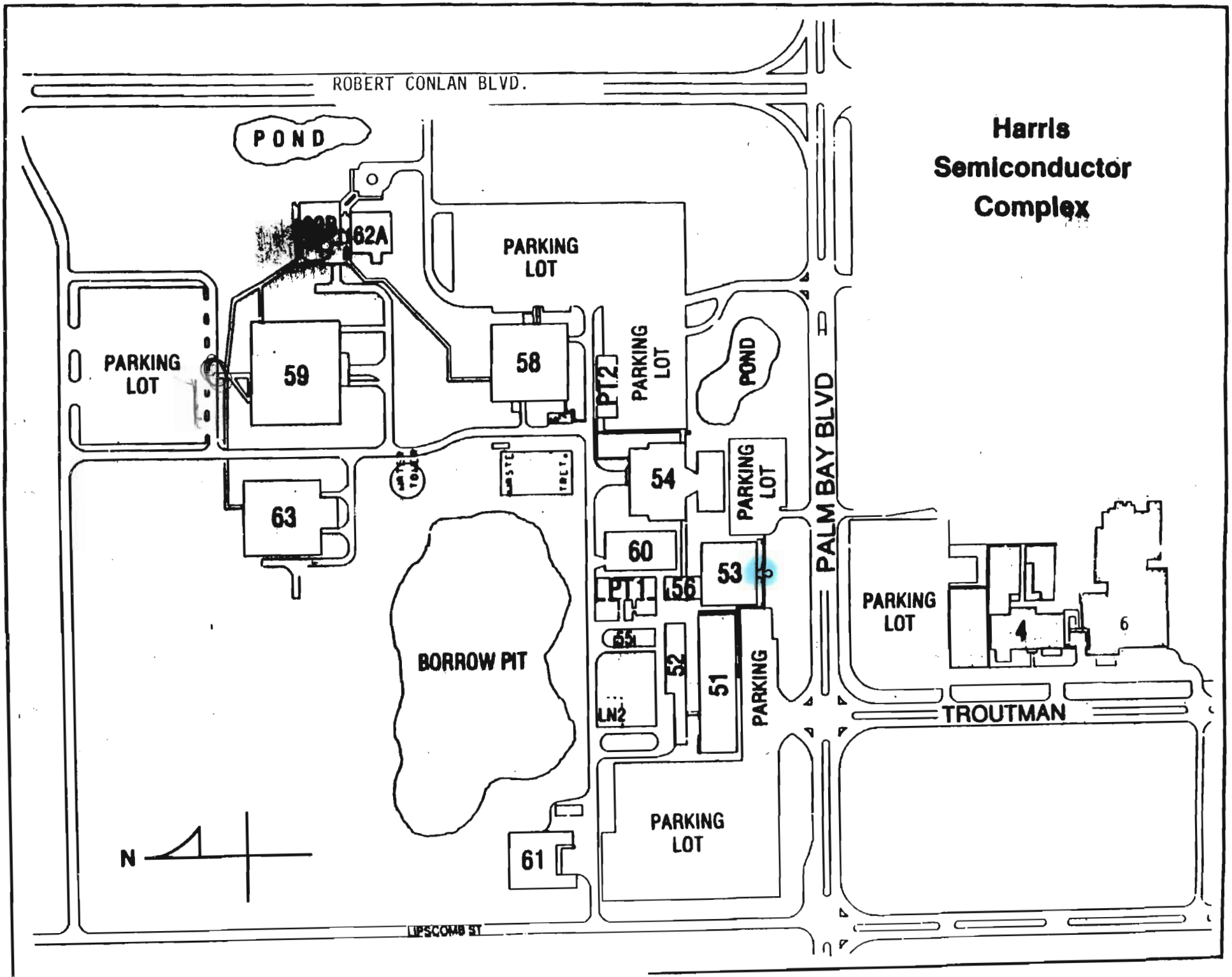
NOTE: ALL PROJECTED DATES AFTER THE FEASIBILITY STUDY ARE ASSUMING THAT THE STUDY INDICATES A COGENERATION PLANT IS FEASIBLE AND ADDITIONAL STUDIES ARE NOT NECESSARY.

HARRIS SEMICONDUCTOR

ATTACHMENT IV

CHEMICAL INVENTORY RECONCILIATION

CALENDAR YEAR 1987



Technical Evaluation
and
Preliminary Determination

Harris Semiconductor
Brevard County
Palm Bay, Florida

Construction Permits: AC 05-147321
AC 05-150794

Florida Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Quality Management
Central Air Permitting

August 17, 1988

II. Application

A. Applicant

Harris Semiconductor

P.O. Box 883

Melbourne, Florida 32901

B. Project and Location

The applicant has applied for construction permits for Buildings #54 and #59, in order to consolidate multiple permits previously issued for these sources/buildings.

The existing facility is located on Palm Bay Road, City of Palm Bay, Florida. The UTM coordinates are Zone 17, 538.7 km East and 3100.9 km North.

C. Process and Controls

1. Building 54

Building 54 is a wafer fabrication facility. The second floor of the two-story building houses two clean room modules. Both fabrication areas employ a series of manufacturing procedures referred to as layering, patterning, doping and heating processes. The frequency and sequence of these processes can vary depending on the desired nature of the final product.

Wet stations that house vats containing a variety of acid and caustic compounds are located throughout the clean rooms. Storage cabinets safely hold virgin chemicals until they are ready for use. The first floor of the building contains exhausted gas cabinets that supply process gases to the 'fab' operations.

The exhaust system for the building is divided into two sections. The west half exhaust is fed into a common duct that is divided into two wet scrubber systems, F54S01 and F54S02, at ground level. The east portion of the building exhaust is ducted a common line that divides into two wet scrubbers (F54S03 and F54S04) on the east side of building [illegible]. Also on the east side of building 54 is a non-scrubbed exhaust fan F54E17 that handles air flow from several alligners, furnace source cabinets, and gas cabinets.

2. Building 59

Building 59 houses a wafer fabrication facility on the second floor. The fabrication area employs a series of manufacturing procedures referred to as layering, patterning, doping and heating processes. The frequency and sequence of these processes can vary depending on the desired nature of the final product.

Thirteen exhausted wet stations that house vats containing a variety of acid and caustic compounds are in the fabrication facility. Five of these stations contain solvents, one of which is heated.

The ground floor of the two-story manufacturing area houses a process equipment support room that contains gas cabinets, chemical storage cabinets, vacuum pumps and drains. These exhausted units service the process equipment which resides above it in the fabrication area. Storage cabinets safely hold virgin chemicals until they are ready for use. Gas cabinets house cylinders that supply process gases to the `fab' operations. In addition, several waste collection areas are exhausted. The ground floor also houses the site's distilled water plant, and a mechanical equipment storage area.

The exhaust system for the building is divided between two scrubbers. Acid vapors are vented to scrubber number F59S01, while solvent exhaust streams are ducted to scrubber number F59S03. Both systems reside on the site grounds directly outside the west wall of the building.

3. General

In the controlled environment of the fabrication clean room, wafer surfaces first undergo acid and/or solvent cleaning, followed by thermal oxidation in furnaces to form a layer of silicon dioxide on the wafer surface.

During the patterning process, the wafers are initially baked and primed. Coaters then spin a thin layer of "photoresist" on the wafer, after which the wafers are soft baked. Next, the circuit pattern is projected onto the wafers via "alligners" or "steppers." Developers are then applied to remove unpolymerized areas of photoresist. This is followed by a solvent rinse.

Next, the wafers hard-baked, inspected to determine accuracy, and etched by wet (acid bath) or dry (plasma vapor) mechanisms. Once etching is complete, the photoresist is stripped off the wafer using chemical baths or plasma techniques.

In another step of the fabrication process, "dopant" atoms are either diffused into the wafer in diffusion furnaces, or accelerated into the wafer using "ion implantation." Fumes from the vapor deposition furnaces are oxidized in `burn boxes.' The oxidized gases are then exhausted to scrubber systems. Additional material may be layered on the wafer surface in vapor and crystal (epitaxial) deposition furnaces. Metallization to interconnect uppermost circuit layers is performed by deposition (using "sputtering" systems) or evaporation.

A material balance scheme will be used to account for the annual VOC/solvent emissions released into the atmosphere by the facility. A program of sampling and analysis will be used to assess the VOC/solvent emissions from each building.

The Standard Industrial Classification Codes are:

- Industry Group No. 367 : Electronic Components and Accessories
- Industry No. : Semiconductors and Related Devices

The Source Classification Codes are:

- Major Group 36 : Organic Solvent Evaporation
- Building 54 4-01-003-99 Tons VOC/solvent consumed
- Building 59 4-01-003-99 Tons VOC/solvent consumed

II. Rule Applicability

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 and 17-4.

The application package for AC 05-150394 was deemed complete on June 10, 1988. The application package for AC 05-147321 was deemed complete on July 1, 1988.

The existing facility is located in an area designated attainment for all pollutants. Therefore, review of emissions shall be in accordance with FAC Rule 17-2.500, Prevention of Significant Deterioration (PSD).

Since the facility is not one of those contained in Table 500-1, FAC Rule 17-2, the VOC/solvent threshold for triggering new source review pursuant to FAC Rule 17-2.500(5) is 250 TPY.

The following table presents the projected potential

VOC/solvent emissions:

Table 1

Source	Potential VOC/solvent Emissions (TPY)	
Building 54		
◦ F54S01[1]	8.7	9.9
◦ F54S02[1]	8.7	9.9
◦ F54S03[2]	32.6	37.2
◦ F54S04[2]	32.6	37.2
Building 59		
◦ F59S03[2]	0.6	0.6
	Total: 83.2	94.8

Note: 1. Annual hours of operation at 4160.

2. Annual hours of operation at 8760.

The following table presents the projected potential VOC/solvent emissions from the facility:

Table 2

Building	Potential VOC/solvent Emissions (TPY)
[redacted] 4	10.96
[redacted] 51	29.34
[redacted] 54	82.58
[redacted] 57	0.95
[redacted] 58	2.59
[redacted] 59	0.57
[redacted] 60	min.
[redacted] 61	0.07
[redacted] 62	0.32
[redacted] 63	4.13
	Total: 131.49

The buildings operations/sources are subject to the provisions of FAC Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; 17-4.130: Plant Operation-Problems; and, 17-4.140: Reports.

III. SUMMARY OF EMISSIONS

A. Emission Limitations

The regulated pollutant emissions from these buildings/sources ~~to the existing facility~~ are ~~volatile organic compounds~~ VOC/solvents in accordance with Rule 17-2.620, FAC.

Specific acid solutions are also being used during the manufacturing operations. There are no specific emission limiting standards for these specific acids. However, the acid vapors will be scrubbed to reduce emissions.

The following table presents the allowable VOC/solvent emissions and the potential acid vapor emissions from Buildings 54 and 59 in TPY:

Table 3

Building	Maximum Allowable VOC/Solvent Emissions	Potential Acid Vapor Emissions
54	82.6	
59	0.6	0.1

The permitted emissions are in compliance with all requirements of FAC Rules 17-2 and 17-4

B. Air Quality Impacts

From the technical review of the application packages and supplementary material, a violation of Florida's ambient air quality standards should not occur.

IV. Conclusion

The maximum allowable VOC/solvent emissions from Buildings 54 and 59 are in compliance with FAC Rules 17-2 and 17-4. Even though there are no emission standards for acid vapors, the applicant has installed scrubber systems to control their emissions.

A system of material balance and sampling/analysis will be used to account for and verify pollutant emissions from each building and their scrubber system.

The General and Specific Conditions listed in the proposed permits (attached) will ensure compliance with all applicable requirements of FAC Rules 17-2 and 17-4.

Florida Bureau

Technical Evaluation and Preliminary Determination

Harris Semiconductor
Brevard County
Palm Bay, Florida

Construction Permits: AC 05-147321
AC 05-150794

Florida Department of Environmental Regulation
Division of Air Resources Management
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August 17, 1988

II. Application

A. Applicant

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P.O. Box 883

Melbourne, Florida 32901

B. Project and Location

The applicant has applied for construction permits for Buildings #54 and #59, in order to consolidate multiple permits previously issued for these sources/buildings.

The existing facility is located on Palm Bay Road, City of Palm Bay, Florida. The UTM coordinates are Zone 17, 538.7 km East and 3100.9 km North.

C. Process and Controls

1. Building 54

Building 54 is a wafer fabrication facility. The second floor of the two-story building houses two clean room modules. Both fabrication areas employ a series of manufacturing procedures referred to as layering, patterning, doping and heating processes. The frequency and sequence of these processes can vary depending on the desired nature of the final product.

Wet stations that house vats containing a variety of acid and caustic compounds are located throughout the clean rooms. Storage cabinets safely hold virgin chemicals until they are ready for use. The first floor of the building contains exhausted gas cabinets that supply process gases to the 'fab' operations.

The exhaust system for the building is divided into two sections. The west half exhaust is fed into a common duct that is divided into two wet scrubber systems, F54S01 and F54S02, at ground level. The east portion of the building exhaust is ducted a common line that divides into two wet scrubbers (F54S03 and F54S04) on the east side of building [illegible]. Also on the east side of building 54 is a non-scrubbed exhaust fan F54E17 that handles air flow from several alligners, furnace source cabinets, and gas cabinets.

2. Building 59

Building 59 houses a wafer fabrication facility on the second floor. The fabrication area employs a series of manufacturing procedures referred to as layering, patterning, doping and heating processes. The frequency and sequence of these processes can vary depending on the desired nature of the final product.

Thirteen exhausted wet stations that house vats containing a variety of acid and caustic compounds are in the fabrication facility. Five of these stations contain solvents, one of which is heated.

The ground floor of the two-story manufacturing area houses a process equipment support room that contains gas cabinets, chemical storage cabinets, vacuum pumps and drains. These exhausted units service the process equipment which resides above it in the fabrication area. Storage cabinets safely hold virgin chemicals until they are ready for use. Gas cabinets house cylinders that supply process gases to the `fab' operations. In addition, several waste collection areas are exhausted. The ground floor also houses the site's distilled water plant, and a mechanical equipment storage area.

The exhaust system for the building is divided between two scrubbers. Acid vapors are vented to scrubber number F59S01, while solvent exhaust streams are ducted to scrubber number F59S03. Both systems reside on the site grounds directly outside the west wall of the building.

3. General

In the controlled environment of the fabrication clean room, wafer surfaces first undergo acid and/or solvent cleaning, followed by thermal oxidation in furnaces to form a layer of silicon dioxide on the wafer surface.

During the patterning process, the wafers are initially baked and primed. Coaters then spin a thin layer of "photoresist" on the wafer, after which the wafers are soft baked. Next, the circuit pattern is projected onto the wafers via "alligners" or "steppers." Developers are then applied to remove unpolymerized areas of photoresist. This is followed by a solvent rinse.

Next, the wafers hard-baked, inspected to determine accuracy, and etched by wet (acid bath) or dry (plasma vapor) mechanisms. Once etching is complete, the photoresist is stripped off the wafer using chemical baths or plasma techniques.

In another step of the fabrication process, "dopant" atoms are either diffused into the wafer in diffusion furnaces, or accelerated into the wafer using "ion implantation." Fumes from the vapor deposition furnaces are oxidized in `burn boxes.' The oxidized gases are then exhausted to scrubber systems. Additional material may be layered on the wafer surface in vapor and crystal (epitaxial) deposition furnaces. Metallization to interconnect uppermost circuit layers is performed by deposition (using "sputtering" systems) or evaporation.

A material balance scheme will be used to account for the annual VOC/solvent emissions released into the atmosphere by the facility. A program of sampling and analysis will be used to assess the VOC/solvent emissions from each building.

The Standard Industrial Classification Codes are:

- Industry Group No. 367 : Electronic Components and Accessories
- Industry No. : Semiconductors and Related Devices

The Source Classification Codes are:

- Major Group 36 : Organic Solvent Evaporation
- Building 54 4-01-003-99 Tons VOC/solvent consumed
- Building 59 4-01-003-99 Tons VOC/solvent consumed

II. Rule Applicability

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 and 17-4.

The application package for AC 05-150794 was deemed complete on June 10, 1988. The application package for AC 05-147521 was deemed complete on July 1, 1988

The existing facility is located in an area designated attainment for all pollutants. Therefore, review of emissions shall be in accordance with FAC Rule 17-2.500, Prevention of Significant Deterioration (PSD).

Since the facility is not one of those contained in Table 500-1, FAC Rule 17-2, the VOC/solvent threshold for triggering new source review pursuant to FAC Rule 17-2.500(5) is 250 TPY.

The following table presents the projected potential

VOC/solvent emissions:

Table 1

Source	Potential VOC/solvent Emissions (TPY)
Building 54	
• F54501[1]	8.7
• F54502[1]	8.7
• F54503[2]	32.6
• F54504[2]	32.6
Building 59	
• F59503[2]	0.6
Total:	83.2

Note: 1. Annual hours of operation at 4160.

2. Annual hours of operation at 8760.

The following table presents the projected potential VOC/solvent emissions from the facility:

Table 2

Building	Potential VOC/solvent Emissions (TPY)
[redacted] 4	10.96
[redacted] 51	29.34
[redacted] 54	82.58
[redacted] 57	0.95
[redacted] 58	2.59
[redacted] 59	0.57
[redacted] 60	min.
[redacted] 61	0.07
[redacted] 62	0.32
[redacted] 63	4.13
Total:	131.49

Since the potential emissions are less than 250 TPY for the facility, the potential emissions projected from Buildings 54 and 59 will be reviewed pursuant to FAC Rule 17-2.520, Sources Not Subject to PSD or Nonattainment Requirements.

Since there is no specific emission limiting standard contained in FAC Rule 17-2.600 nor is there any standards of performance for new stationary sources contained in FAC Rule 17-2.660, the sources will be permitted in accordance with FAC Rule 17-2.620, General Pollutant Emission Limiting Standards.

In Rule 17-2.620(1)(a), FAC, 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. Rule 17-2.620(2), FAC, states that no person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. 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 according to Rule 17-2.100(132), FAC.

The buildings operations/sources are subject to the provisions of FAC Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; 17-4.130: Plant Operation-Problems; and, 17-4.140: Reports.

III. SUMMARY OF EMISSIONS

A. Emission Limitations

The regulated pollutant emissions from these buildings/sources ~~to the existing facility~~ are ~~volatile organic compounds~~ VOC/solvents in accordance with Rule 17-2.620, FAC.

Specific acid solutions are also being used during the manufacturing operations. There are no specific emission limiting standards for these specific acids. However, the acid vapors will be scrubbed to reduce emissions.

The following table presents the allowable VOC/solvent emissions and the potential acid vapor emissions from Buildings 54 and 59 in TPY:

Table 3

Building	Maximum Allowable VOC/Solvent Emissions	Potential Acid Vapor Emissions
54	82.6	
59	0.6	0.1

The permitted emissions are in compliance with all requirements of FAC Rules 17-2 and 17-4

B. Air Quality Impacts

From the technical review of the application packages and supplementary material, a violation of Florida's ambient air quality standards should not occur.

IV. Conclusion

The maximum allowable VOC/solvent emissions from Buildings 54 and 59 are in compliance with FAC Rules 17-2 and 17-4. Even though there are no emission standards for acid vapors, the applicant has installed scrubber systems to control their emissions.

A system of material balance and sampling/analysis will be used to account for and verify pollutant emissions from each building and their scrubber systems.

The General and Specific Conditions listed in the proposed permits (attached) will ensure compliance with all applicable requirements of FAC Rules 17-2 and 17-4.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

WAIVER OF 90 DAY TIME LIMIT
UNDER SECTIONS 120.60(2) AND 403.0876, FLORIDA STATUTES

License (Permit, Certification) Application No. _____

Applicant's Name: _____

The undersigned has read Sections 120.60(2) and 403.0876, Florida Statutes, and fully understands the applicant's rights under that section.

With regard to the above reference license (permit, certification) application, the applicant hereby with full knowledge and understanding of (his) (her) (its) rights under Sections 120.60(2) and 403.0876, Florida Statutes, waives the right under Sections 120.60(2) and 403.0876, Florida Statutes, to have the application approved or denied by the State of Florida Department of Environmental Regulation within the 90 day time period prescribed in Sections 120.60(2) and 403.0876, Florida Statutes. Said waiver is made freely and voluntarily by the applicant, is in (his) (her) (its) self-interest, and without any pressure or coercion by anyone employed by the State of Florida Department of Environmental Regulation.

This waiver shall expire on the _____ day of _____ 19___.

The undersigned is authorized to make this waiver on behalf of the applicant.

_____
Signature

_____
Please Type Name of Signee

_____
Date

Sworn to and subscribed
before me this ____ day
of _____ 19___.

DER Form 17-1.201(8)
Effective November 30, 1982

Section 120.60, Florida Statutes

(2) When an application for a license is made as required by law, the agency shall conduct the proceedings required with reasonable dispatch and with due regard to the rights and privileges of all affected parties or aggrieved persons. Within 30 days after receipt of an application for a license, the agency shall examine the application, notify the applicant of any apparent errors or omissions, and request any additional information the agency is permitted by law to require. Failure to correct an error or omission or to supply additional information shall not be grounds for denial of the license unless the agency timely notified the applicant within this 30 day period. The agency shall notify the applicant if the activity for which he seeks a license is exempt from the licensing requirement and return any tendered application fee within 30 days after receipt of the original application or within 10 days after receipt of the timely requested additional information or correction of errors or omissions. Every application for license shall be approved or denied within 90 days after receipt of the original application or receipt of the timely requested additional information or correction of errors or omissions unless a shorter period of time for agency action is provided by law. The 90-day or shorter time period shall be tolled by the initiation of a proceeding under Section 120.57 and shall resume 10 days after the recommended order is submitted to the agency and the parties. Any application for a license not approved or denied within the 90-day period or shorter time period, within 15 days after conclusion of a public hearing held on the application, or within 45 days after the recommended order is submitted to the agency and the parties, whichever is latest, shall be deemed approved and, subject to the satisfactory completion of an examination, if required as prerequisite to licensure, the license shall be issued. The Public Service Commission, when issuing a license, and any other agency, if specifically exempted by law, shall be exempt from the time limitations within this subsection. Each agency, upon issuing or denying a license, shall state with particularity the grounds or basis for the issuance or denial of same, except where issuance is a ministerial act. On denial of a license application on which there has been no hearing, the denying agency shall inform the applicant of any right to a hearing pursuant to Section 120.57.

Section 403.0876, Florida Statutes

Permits; processing. ---Within 30 days after receipt of an application for a permit under this chapter, the department shall review the application and shall request submittal of all additional information the department is permitted by law to require. If the applicant believes any departmental request for additional information is not authorized by law or departmental rule, the applicant may request a hearing pursuant to s. 120.57. 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. If the applicant believes the request of the department for such additional information is not authorized by law or departmental rule, the department, at the aplicant's request, shall proceed to process the permit application. 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.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

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This waiver shall expire on the _____ day of _____ 19___.

The undersigned is authorized to make this waiver on behalf of the applicant.

_____
Signature

_____
Please Type Name of Signee

_____
Date

Sworn to and subscribed
before me this ____ day
of _____ 19___.

DER Form 17-1.201(8)
Effective November 30, 1982

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STATE OF FLORIDA

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This waiver shall expire on the _____ day of _____ 19___.

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Signature

_____
Please Type Name of Signee

_____
Date

Sworn to and subscribed
before me this ____ day
of _____ 19___.

DER Form 17-1.201(8)
Effective November 30, 1982

Section 120.60, Florida Statutes

(2) When an application for a license is made as required by law, the agency shall conduct the proceedings required with reasonable dispatch and with due regard to the rights and privileges of all affected parties or aggrieved persons. Within 30 days after receipt of an application for a license, the agency shall examine the application, notify the applicant of any apparent errors or omissions, and request any additional information the agency is permitted by law to require. Failure to correct an error or omission or to supply additional information shall not be grounds for denial of the license unless the agency timely notified the applicant within this 30 day period. The agency shall notify the applicant if the activity for which he seeks a license is exempt from the licensing requirement and return any tendered application fee within 30 days after receipt of the original application or within 10 days after receipt of the timely requested additional information or correction of errors or omissions. Every application for license shall be approved or denied within 90 days after receipt of the original application or receipt of the timely requested additional information or correction of errors or omissions unless a shorter period of time for agency action is provided by law. The 90-day or shorter time period shall be tolled by the initiation of a proceeding under Section 120.57 and shall resume 10 days after the recommended order is submitted to the agency and the parties. Any application for a license not approved or denied within the 90-day period or shorter time period, within 15 days after concluaion of a public hearing held on the application, or within 45 days after the recommended order is submitted to the agency and the parties, whichever is latest, shall be deemed approved and, subject to the satisfactory completion of an examination, if required as prerequisite to licensure, the license shall be issued. The Public Service Commission, when issuing a license, and any other agency, if specifically exempted by law, shall be exempt from the time limitations within this subsection. Each agency, upon issuing or denying a license, shall state with particularity the grounds or basis for the issuance or denial of same, except where issuance is a ministerial act. On denial of a license application on which there has been no hearing, the denying agency shall inform the applicant of any right to a hearing pursuant to Section 120.57.

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DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

	Initial / Date
1. TO: (NAME, OFFICE, LOCATION) Bruce Mitchell, Engr IV	
2. PGM - BAQM -	
3. CAPS - Room 310 D Twin Towers	
4. Tall -	

REMARKS:

INFORMATION

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

RECEIVED

MAR 21 1988

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: John Turner

DATE 3/18/88

PHONE

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

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

TO: BRUCE MITCHELL

THROUGH: A. ALEXANDER
C.M. COLLINS
A.T. SAWICKI

FROM: JOHN TURNER

DATE: MARCH 17, 1988

SUBJECT: HARRIS SEMICONDUCTOR - BUILDING 54 PERMIT CONSOLIDATION.

We have reviewed a copy of the referenced application sent to BAQM, Central Air Permitting Staff from Harris Semiconductor that requests consolidating permits A005-65408 and A005-115804 at building 54. We have the following comments:

a. Permit A005-65408 is in need of renewal as it expires 5/2/88.

b. The most recent permit renewals for these permits appear to indicate total VOC emission rates of approximately 4.7 tons/year (copies enclosed), which is significantly less than the requested VOC emission rate of 94.34 tons/year of attachment B.

c. The application dated March 2, 1988, attachment B, indicates a 13% VOC reduction due to scrubber efficiency but does not address whether these VOC's are emitted elsewhere downstream of the scrubbers. We believe most of these VOC's are emitted from the aeration pond used to neutralize industrial wastewater.

d. The application does not address the VOC capture efficiency and VOC emission rate of the uncaptured VOC's.

e. When the VOC material balance is received, it may show VOC emissions are significantly different than the tested and projected emissions of attachment B.

Enclosure

Copied: Bruce Mitchell
CHF/BT
3.21.88 mt

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY
ALEX SENKEVICH
DISTRICT MANAGER

APPLICATION FOR RENEWAL OF PERMIT TO OPERATE AIR POLLUTION SOURCE(S)

If major alterations have occurred, the applicant should complete the Standard Air Permit Application Form.

Source Type: Fume Hood Exhaust Scrubber Renewal of DER Permit No. A005-6882

Company Name: Harris Semiconductor County: Brevard

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

Building 54 - W - System 1

Source Location: Street: Palm Bay Road City: Palm Bay

UTM: East 17-538700 North 17-31000900

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

1. Attach a check made payable to the Department of Environmental Regulation in accordance with operation permit fee schedule set forth in Florida Administrative Code Rule 17-4.05.

2. Have there been any alterations to the plant since last permitted? [ ] Yes [X] No If minor alterations have occurred, describe on a separate sheet and attach.

3. Attach the last compliance test report required per permit conditions if not submitted previously.

4. Have previous permit conditions been adhered to? [X] Yes [ ] No If no, explain on a separate sheet and attach.

5. Has there been any malfunction of the pollution control equipment during tenure of current permit? [ ] Yes [X] No If yes, and not previously reported, give brief details and what action was taken on a separate sheet and attach.

6. Has the pollution control equipment been maintained to preserve the collection efficiency last permitted by the Department? [X] Yes [ ] No

7. Has the annual operating report for the last calendar year been submitted? [X] Yes [ ] No If no, please attach.

8. Please provide the following information if applicable:

A. Raw Materials and Chemical Used in Your Process:

Description	Contaminant Type	Contaminant %Wt	Utilization Rate lbs/hr
Silicon Wafers			
See Attachment A			See Attachment A

B. Product Weight (lbs/hr): _____

C. Fuels N/A

Type (Be Specific)	Consumption* Avg/hr*	Consumption* Max/hr**	Maximum Heat Input (MMBTU/hr)

D. Normal Equipment Operating Time: hrs/day 24 ; days/wk 5 ; wks/yr 52 ;

hrs/yr (power plants only) _____; if seasonal, describe _____

_____

_____

The undersigned owner or authorized representative*** of Harris Semiconductor is fully aware that the statements made in this application for a renewal of a permit to operate an air pollution source are true, correct and complete to the best of his knowledge and belief. Further, the undersigned agrees to maintain and operate the pollution source and pollution control facilities in such a manner as to comply with the provisions of Chapter 403, Florida Statutes, and all the rules and regulations of the Department. He also understands that a permit, if granted by the Department, will be non-transferable and he will promptly notify the Department upon sale or legal transfer of the permitted facility.

*During actual time of operation.
**Units: Natural Gas-MMCF/hr; Fuel Oils-barrels/hr; Coal-lbs/hr.
***Attach letter of authorization if not previously submitted

C. K.
Signature, Owner or Authorized Representative
(Notarization is mandatory)

A. King, Vice President (for P. R. Bumgarner)
Typed Name and Title

P. O. Box 883
Address

Melbourne FL 32901
City State Zip

1/31/83
Date

(305) 724-7225
Telephone No.

ATTACHMENT A

HARRIS SEMICONDUCTOR

Exhaust System, Building 54

RAW MATERIAL	UTILIZATION RATE LB/HR.	DISCHARGE POUND/ HOUR	DISCHARGE TON/YEAR
Hydrofluoric Acid	3.0	0.045	0.140
Sulphuric Acid	19.0	0.286	0.892
Hydrogen Peroxide	1.7	0.026	0.081
Hydrochloric Acid	0.8	0.012	0.004
Nitric Acid	0.5	0.007	0.022
Trichloro-ethylene	2.1	0.0415	0.1294
Xylene	2.8	0.0554	0.1730
Isopropyl Alcohol	0.5	0.0106	0.0329
Methyl Alcohol	2.2	0.0436	0.1359

2.6

5-20-1.6102 TPY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

APPLICATION FOR RENEWAL OF PERMIT TO OPERATE AIR POLLUTION SOURCE(S)

If major alterations have occurred, the applicant should complete the Standard Air Permit Application Form.

Source Type: Stationary Renewal of DER Permit No. AO 05-38488

Company Name: Harris Semiconductor County: Brevard

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

Building 54- East Module Dual Scrubbers

Source Location: Street: Palm Bay Road City: Palm Bay

UTM: East 17-538700 North 17-3100900

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

1. Attach a check made payable to the Department of Environmental Regulation in accordance with operation permit fee schedule set forth in Florida Administrative Code Rule 17-4.05.

2. Have there been any alterations to the plant since last permitted? [ ] Yes [X] No If minor alterations have occurred, describe on a separate sheet and attach.

3. Attach the last compliance test report required per permit conditions if not submitted previously.

4. Have previous permit conditions been adhered to? [X] Yes [ ] No If no, explain on a separate sheet and attach.

5. Has there been any malfunction of the pollution control equipment during tenure of current permit? [ ] Yes [X] No If yes, and not previously reported, give brief details and what action was taken on a separate sheet and attach.

6. Has the pollution control equipment been maintained to preserve the collection efficiency last permitted by the Department? [X] Yes [ ] No

7. Has the annual operating report for the last calendar year been submitted? [ ] Yes [X] No If no, please attach. See Attachments

8. Please provide the following information if applicable:

A. Raw Materials and Chemical Used in Your Process:

Description	Contaminant Type	Contaminant %Wt	Utilization Rate lbs/hr
See Attachment A			

B. Product Weight (lbs/hr): N/A

C. Fuels

Type (Be Specific)	Consumption* Avg/hr*	Consumption* Max/hr**	Maximum Heat Input (MMBTU/hr)
N/A			

D. Normal Equipment Operating Time: hrs/day 24; days/wk 5; wks/yr 52; hrs/yr (power plants only) -; if seasonal, describe _____

The undersigned owner or authorized representative*** of Harris Semiconductor is fully aware that the statements made in this application for a renewal of a permit to operate an air pollution source are true, correct and complete to the best of his knowledge and belief. Further, the undersigned agrees to maintain and operate the pollution source and pollution control facilities in such a manner as to comply with the provisions of Chapter 403, Florida Statutes, and all the rules and regulations of the Department. He also understands that a permit, if granted by the Department, will be non-transferable and he will promptly notify the Department upon sale or legal transfer of the permitted facility.

*During actual time of operation.
**Units: Natural Gas-MMCF/hr; Fuel Oils-barrels/hr; Coal-lbs/hr.
***Attach letter of authorization if not previously submitted

James R. Kolanek
Signature, Owner or Authorized Representative (Notarization is mandatory)

James R. Kolanek Mgr., Environmental Services
Typed Name and Title

P.O. Box 883 M/S 58-55
Address

Melbourne Florida 32901
City State Zip

2/6/86
Date

(305) 724-7467
Telephone No.

ATTACHMENT A
HARRIS SEMICONDUCTOR
AO 05-38488
Building 54

Description	Contaminant Type	Wt. (lbs/gal)	Utilization Rate (lbs/hr)
Xylene	VOC	7.03	0.222
Mythyl alcohol	Solvent	6.60	0.174
1,1,1, Trichloroethane	VOC	11.25	0.166
Isopropyl Alcohol	Solvent	6.60	0.424
Hydrofluoric Acid	Acid	9.76	0.180
Sulfuric Acid	Acid	15.36	1.144
Hydrochloric Acid	Acid	9.93	0.048
Nitric Acid	Acid	8.85	0.028

0.986 lb/hr @ 100% VOC

0.986 lb/hr (24)(5)(52) = 6153/2000 = 3.08 T/yr VOC @ 6240 lb/yr

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

AC 05-150794

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

BOB MARTINEZ
GOVERNOR
DALE TWACHTMANN
SECRETARY
ALEX ALEXANDER
DISTRICT MANAGER

October 29, 1987

COMPLETENESS SUMMARY AIR POLLUTION SOURCES

SOURCE NAME: Harris Semiconductor

DATE RECEIVED: 10/9/87

DATE REVIEWED: 10/13/87

APPLICANT NAME: James Kolanek
Harris Semiconductor

REVIEWED BY: John Turner

APPLICANT ADDRESS: Post Office Box 883
Melbourne, Florida
32901-0101

11 permits (see next page)

Your application for a permit to construct/operate this referenced project has been reviewed for completeness. The following checked items are needed to complete your application.

( ) Application fee of $_____. Make check payable to the Department of Environmental Regulation.

( ) Letter authorizing applicant to represent owner.

( ) 8-1/2" x 11" diagram of flow process.

( ) 8-1/2" x 11" location map.

( ) 8-1/2" x 11" plant layout sketch showing emission points.

( ) Test results showing compliance with emission limitations of the department.

( ) Air diffusion modeling results showing compliance with ambient air standards and PSD increment.

( ) Engineer's report pursuant to Florida Administrative Code Rule 17-4.21(1)(c).

( ) See comments on application attached.

(X) Other: (Any section of the application which is incomplete or lacks sufficient information to be evaluated).

DER Form 17-1.202(2), Effective Date November 30, 1982

Permit Numbers:

	Bldg		Bldg		Bldg
AC05-104519	61	AC05-104521	58	AC05-104512	63
AC05-104527	58	AC05-104525	4	AC05-104513	62
AC05-104522	57	AC05-104524	4	AC05-104515	59
AC05-104523	55	AC05-108260	63		

1. Due to incomplete information, the department has not been able to adequately assess the overall facility-wide VOC emissions and usage, including the waste water treatment plant, as required in specific condition number 8 or 9 of the referenced permits. The chemical inventory report submitted January 1987 was not complete and adequate to fulfill the intent of Specific Condition No. 8 or 9 and improvements in procedures should be implemented to produce an accurate report in February 1988.

June 29, 1987 report adequate?

~~2. State the amount of VOC emissions from the waste water treatment plant.~~

~~3. Explain the apparent failure of the tested scrubbers to remove VOC's from the gas streams. Note that the scrubber covered by permit No. AC05-104523 has yet to be tested and this should be accomplished as soon as possible.~~

Pursuant to Section 120.60(2) Florida Statutes, the department may deny an application if the applicant, after receiving timely notice fails to correct errors, omissions or supply additional information within a reasonable period of time.

The last VOC emission test report appears to indicate at least seven and possibly eight of the eleven scrubber outlets are not in compliance with the specified emission limits. Therefore, these sources are not in compliance with the referenced permits. The report also indicates that the VOC removal efficiencies of the scrubbers is very low, being zero percent in most cases. ~~Your October 5, 1987 letter references your July 29, 1987 letter regarding the sampling schedule for the wastewater treatment plant and the scrubbers.~~ As agreed in our September 17, 1987 meeting please provide, in November 1987, a schedule of objectives and achievements of progress towards compliance with the referenced air construction permits.

If there are any questions, please call John Turner at 305/894-7555 or write to me at the above address.

Sincerely,

Is this an issue anymore?

A. T. Sawicki

A. T. Sawicki, P.E., Supervisor
Air Section

ATS/jtc

cc: Bruce Mitchell
CHF/BT

7.13.88 mp

Is an update needed?

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

	Initial	Date
1. TO: (NAME, OFFICE, LOCATION) Bruce Mitchell		
2. Bureau of Air Quality Manag.		
3.		
4.		

REMARKS:

Day 30 is July 30, 1988.

RECEIVED

JUL 13 1988

DER - BAQM

INFORMATION	
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	Initial & Forward

DISPOSITION	
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	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: John Turner

DATE 7/12/88

PHONE SC 325-1266

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION) Bruce Mitchell	Initial / Date
2. Bureau of Air Quality Manag.	Initial / Date
3 Department of Environmental Regulation Twin Towers Office Building	Initial / Date
4. 2600 Blair Stone Road Tallahassee, FL 32399-2400	Initial / Date

REMARKS:

FYI

DER

NOV 3 1987

BAQM

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DISPOSITION	
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	Prepare Response
	For My Signature
	For Your Signature
	Let's Discuss
	Set Up Meeting
	Investigate & Report
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	Distribute
	Concurrence
	For Processing
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FROM:

DATE 11/2/87

PHONE SC 325/403

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

file

DER

NOV 3 1987

BAQM

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

October 29, 1987

COMPLETENESS SUMMARY AIR POLLUTION SOURCES

SOURCE NAME: Harris Semiconductor

DATE RECEIVED: 10/9/87

DATE REVIEWED: 10/13/87

APPLICANT NAME: James Kolanek
Harris Semiconductor

REVIEWED BY: John Turner

APPLICANT ADDRESS: Post Office Box 883
Melbourne, Florida
32901-0101

11 permits (see next page)

Your application for a permit to construct/operate this referenced project has been reviewed for completeness. The following checked items are needed to complete your application.

( ) Application fee of $_____. Make check payable to the Department of Environmental Regulation.

( ) Letter authorizing applicant to represent owner.

( ) 8-1/2" x 11" diagram of flow process.

( ) 8-1/2" x 11" location map.

( ) 8-1/2" x 11" plant layout sketch showing emission points.

( ) Test results showing compliance with emission limitations of the department.

( ) Air diffusion modeling results showing compliance with ambient air standards and PSD increment.

( ) Engineer's report pursuant to Florida Administrative Code Rule 17-4.21(1)(c).

( ) See comments on application attached.

(X) Other: (Any section of the application which is incomplete or lacks sufficient information to be evaluated).

DER Form 17-1.202(2), Effective Date November 30, 1982

Permit Numbers: AC05-104519, AC05-104521, AC05-104512, AC05-104527, AC05-104525, AC05-104513, AC05-104522, AC05-104524, AC05-104515, AC05-104523, AC05-108260

1. Due to incomplete information, the department has not been able to adequately assess the overall facility-wide VOC emissions and usage, including the waste water treatment plant, as required in specific condition number 8 or 9 of the referenced permits. The chemical inventory report submitted January 1987 was not complete and adequate to fulfill the intent of Specific Condition No. 8 or 9 and improvements in procedures should be implemented to produce an accurate report in February 1988.

2. State the amount of VOC emissions from the waste water treatment plant.

3. Explain the apparent failure of the tested scrubbers to remove VOC's from the gas streams. Note that the scrubber covered by permit No. AC05-104523 has yet to be tested and this should be accomplished as soon as possible.

Pursuant to Section 120.60(2) Florida Statutes, the department may deny an application if the applicant, after receiving timely notice fails to correct errors, omissions or supply additional information within a reasonable period of time.

The last VOC emission test report appears to indicate at least seven and possibly eight of the eleven scrubber outlets are not in compliance with the specified emission limits. Therefore, these sources are not in compliance with the referenced permits. The report also indicates that the VOC removal efficiencies of the scrubbers is very low, being zero percent in most cases. Your October 5, 1987 letter references your July 29, 1987 letter regarding the sampling schedule for the wastewater treatment plant and the scrubbers. As agreed in our September 17, 1987 meeting please provide, in November 1987, a schedule of objectives and achievements of progress towards compliance with the referenced air construction permits.

If there are any questions, please call John Turner at 305/894-7555 or write to me at the above address.

Sincerely,

A. T. Sawicki

A. T. Sawicki, P.E., Supervisor
Air Section

ATS/jtc

cc: Bruce Mitchell

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION) Bruce Mitchell - BAQM	Initial	
	Date	
2. Tally	Initial	
	Date	
3. DER	Initial	
	Date	
4. MAR 5 1987	Initial	
	Date	

REMARKS: BAQM

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	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: A. T. Sawicki

DATE 3/4/87

PHONE

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

DER

MAR 5 1987

BAQM

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

March 3, 1987

COMPLETENESS SUMMARY AIR POLLUTION SOURCES

SOURCE NAME: Harris Semiconductor

DATE RECEIVED: 2/27/87

DATE REVIEWED: 2/27/87

APPLICANT NAME: James R. Kolanek

REVIEWED BY: John Turner

APPLICANT ADDRESS: Harris Semiconductor
P. O. Box 883
Melbourne, Florida32901-0101

11 Permits
(see next page)

Your application for a permit to construct/operate this referenced project has been received, and reviewed for completeness. The following checked items are needed to complete your application.

( ) Application fee of $_____. Make check payable to the Department of Environmental Regulation.

( ) Letter authorizing applicant to represent owner.

( ) 8-1/2" x 11" diagram of flow process.

( ) 8-1/2" x 11" location map.

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Permit Numbers:			
	AC05-104519	AC05-104521	AC05-104512
	AC05-104527	AC05-104525	AC05-104513
	AC05-104522	AC05-104524	AC05-104515
	AC05-104523	AC05-108260	

1. Explain the reason for the apparent failure of the tested scrubbers to remove VOC's from the gas streams. For example, was the scrubber water in use saturated with VOC's due to recirculation? Explain whether these or similar factors may apply to the other scrubbers at this facility.

2. State the amount of VOC emissions from the waste water treatment plant.

3. Relate each identified scrubber number to its corresponding permit number.

The department has not been able to adequately assess the overall facility-wide VOC emissions provided on the chemical inventory report as required in specific condition number 9. The inability to properly assess the VOC emissions stems from a failure to provide a beginning and ending inventory, the reasons given in the report, inclusion of non VOC's, etc. Changes in procedures to correct these inadequacies should be in effect.

The VOC emission test report appears to indicate at least seven out of eleven scrubber outlets are not in compliance with the specified emission limits. Therefore these sources are not in compliance with the referenced permits. You may want to contact the Central Air Permitting staff in Tallahassee (Bruce Mitchell) to investigate the possibility of negotiating higher emission limits or other means to demonstrate or achieve compliance.

We await the arrival of the information, as indicated in your February 25, 1987 letter, to satisfy the above referenced incomplete items.

Pursuant to Section 120.60(2) Florida Statutes, the department may deny an application if the applicant, after receiving timely notice fails to correct errors, omissions or supply additional information within a reasonable period of time.

If there are any questions, please call at 305/894-7555 or write to me at the above address.

Sincerely,

Charles M. Collins

for A. T. Sawicki, P.E., Supervisor
Air Permitting

ATS/jte

cc: Bruce Mitchell

BAY AREA
AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street
San Francisco, California 94109

REGULATION 8
ORGANIC COMPOUNDS
RULE 30
SEMICONDUCTOR MANUFACTURING OPERATIONS

INDEX

ORGANIC COMPOUNDS

RULE 30

SEMICONDUCTOR MANUFACTURING OPERATIONS

8-30-100 GENERAL

8-30-101 **Description:** The purpose of this Rule is to limit the emissions of precursor organic compounds from semiconductor manufacturing operations. For the purpose of this Rule, semiconductor manufacturing operations are limited to the manufacture of semiconductor and other related integrated circuits.

8-30-110 **Exemption, Small Semiconductor Operation:** The provisions of Sections 8-30-302, 303, 401, and 501 shall not apply to any facility that emits less that 6.8 kg (15 lb) per day of precursor organic compounds from semiconductor manufacture.

8-30-200 DEFINITIONS

8-30-201 **Freeboard Height:** The distance from the top of the solvent or solvent drain to the top of the sink.

8-30-202 **Freeboard Ratio:** The freeboard height divided by the smaller of the length or width of the sink or reservoir.

8-30-203 **Masking:** Application of a maskant material to a wafer to increase or decrease the masked area's resistance to chemical milling.

8-30-204 **Organic Compound:** Any compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates and ammonium carbonate.

8-30-205 **Organic Compound, Non-precursor:** Methylene chloride, 1,1,1 trichloroethane, 1,1,2 trichlorotrifluoroethane (CFC-113), trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), dichlorotetrafluoroethane (CFC-114), chloropentafluoroethane (CFC-115), chlorodifluoromethane (CFC-22), and trifluoromethane (FC-23).

8-30-206 **Organic Compound, Precursor:** Any organic compound as defined in 8-30-204 excepting the non-precursors as designated in 8-30-205.

8-30-207 **Photoresist Line:** Equipment used to apply and develop photoresist masking solution on a wafer. Process includes preparation (except primary cleaning), soft bake, develop and hard bake.

8-30-208 **Photoresist, Negative:** Maskant hardens when exposed to light. Unhardened maskant is stripped, exposing wafer surface to etching. Typically uses xylene formulated resin and developer solutions.

8-30-209 **Photoresist, Positive:** Maskant softens when exposed to light. Softened maskant is stripped, exposing wafer surface for etching. Typically uses cellosolves for primer and resin carrier with caustic type developer.

8-30-210 **Semiconductor Manufacture:** Any operation performed in order to manufacture semiconductor or related solid state devices, such as semiconductor diodes and stacks, and including rectifiers, integrated microcircuits, transistors, solar cells, and light sensing and emitting devices. Semiconductor manufacture includes all processing from crystal growth through circuit separation and encapsulation. Examples of semiconductor operations are: crystal growth, diffusion operations, photoresist operations, wafer processing, etching, etc.

(Amended March 6, 1985)

8-30-211 **Solvent Cleaning Station:** Any operation whose primary purpose is to remove surface contaminants using a liquid or vapor containing organic compounds.

8-30-300 STANDARDS

8-30-301 **Solvent Cleaning Stations:** A person shall not operate a solvent cleaning station at a semiconductor manufacturing facility unless the following requirements are met:

301.1 Effective January 1, 1985, all unheated reservoirs, sinks, or containers containing precursor organic compounds shall be provided with a cover. All heated containers shall be provided with a cover, or abated by a carbon adsorption system, incineration system, or water scrubber capable of reducing emission of precursor organic compounds by at least 50%. These covers must remain closed unless production, sampling, maintenance, loading or unloading procedures require operator access.

301.2 All reservoirs and sinks containing precursor organic compounds shall be controlled by at least one of the following methods:

2.1 The reservoir or sink shall have a freeboard ratio greater than or equal to 0.75.

2.2 All emissions from the reservoir or sink shall be abated by a carbon adsorption or catalytic incineration system capable of reducing emission of precursor organic compounds by at least 50%.

2.3 All emissions from the reservoir or sink shall be abated by a water scrubber. If the reservoir or sink contains acetone, isopropyl alcohol, methyl ethyl ketone, or trichloroethylene the water scrubber shall be capable of reducing the emission of precursor organic compounds by at least 50%.

301.3 Compliance with Section 301.2 shall occur in accordance with the following schedule:

3.1 Reservoirs and sinks
installed prior to 1979 . . . . . January 1, 1985

3.2 Reservoirs and sinks
installed between 1979 and 1981 . . . . . January 1, 1986

3.3 Reservoirs and sinks
installed between 1981 and January 1, 1984 . . . . . January 1, 1987

3.4 Reservoirs and sinks
installed after January 1, 1984 . . . . . January 1, 1984

301.4 Effective January 1, 1985, if a solvent flow is utilized, precursor organic compounds shall be applied only as a continuous fluid stream (not a fine, atomized, or shower type spray). The stream pressure shall be low enough to prevent liquid from splashing outside the container.

301.5 Precursor organic compounds, including waste solvents, shall not be stored or disposed of in a manner that will allow evaporation into the atmosphere.

301.6 All equipment at a solvent cleaning station shall be operated and maintained in proper working order.

301.7 Liquid solvent leaks shall be repaired immediately or the equipment shall be shut down. (Amended March 6, 1985)

8-30-302 **Negative Photoresist Operations:** Effective January 1, 1987, all exhaust gases containing precursor organic vapors from negative photoresist operations shall be vented to control devices which reduce the total emission of precursor organic compounds to the atmosphere by at least 90 per cent by weight.

8-30-303 **Compensating Reductions:** The requirements of Section 8-30-302 shall not apply to any negative photoresist operation which complies with an alternative emission control plan which has been approved by the APCO and which satisfies all of the following requirements:

303.1 Emissions of precursor organic compounds from negative photoresist operations, on a daily weighted average, shall be no greater than that amount which would result if all affected operations complied with Section 8-30-302.

303.2 The plan shall be submitted to the APCO for review and approval on an annual basis.

303.3 The plan shall include methods acceptable to the APCO for demonstrating compliance with the plan on an annual basis.

303.4 The operator of the facility shall perform any source testing the APCO deems necessary to demonstrate compliance with the plan.

303.5 The person submitting the plan shall maintain such records and submit such information of usage, laboratory analysis, source tests, or other information as required by the APCO to determine compliance with the plan.

303.6 The plan shall not include credit for emissions reductions required by other sections of this regulation or other regulations of this District.

303.7 The plan shall include credit for conversion of negative photoresist lines to positive photoresist. The credit shall be the amount of emissions that would have resulted from the negative photoresist line had it been in compliance with Section 8-30-302, less the actual emissions from the positive photoresist line.

303.8 Failure to comply with any provision of an approved plan shall constitute a violation of this Rule.

8-30-400 ADMINISTRATIVE REQUIREMENTS

8-30-401 **Negative Photoresist Compliance Schedule:** Any facility subject to Sections 8-30-302 or 303 of this Rule shall comply with the following increments of progress:

401.1 Submit to the APCO a complete application for an Authority to Construct necessary equipment modifications and control equipment on or before March 1, 1985; also submit any alternative emission control plan for compliance under Section 8-30-303.

401.2 Complete on-site construction of equipment modifications and control equipment on or before July 1, 1986.

401.3 Demonstrate final compliance on or before January 1, 1987.

8-30-500 MONITORING AND RECORDS

8-30-501 **Annual Reporting:** Any person subject to Sections 8-30-302 or 303 of this Rule shall report the following on an annual basis, prior to renewal of Permits to Operate:

501.1 Quantity of each of the following liquid organic compounds purchased during the previous 12 months for use in semiconductor manufacturing.

Xylene
n-Butyl Acetate
Acetone
Isopropyl Alcohol
Methyl Ethyl Ketone
Trichloroethylene
All other precursor organic compounds (total)
Methylene Chloride
1,1,1 Trichloroethane
All other non-precursor organic compounds (total)

501.2 Separate totals of precursor and non-precursor organic compounds disposed of or reclaimed in liquid form from semiconductor manufacturing operations during the previous 12 months.

Technical Evaluation
and
Preliminary Determination

Harris Semiconductor
Brevard County
Palm Bay, Florida

Construction Permit Numbers:
AC 05-147321
AC 05-150794

Florida Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Quality Management
Central Air Permitting

August 23, 1988

I. Application

A. Applicant

Harris Semiconductor
Post Office Box 883
Melbourne, Florida 32901

B. Project and Location

The applicant has applied for construction permits for Buildings No. 54 and No. 59, in order to consolidate multiple permits previously issued for these sources/buildings.

The existing facility is located on Palm Bay Road, City of Palm Bay, Florida. The UTM coordinates are Zone 17, 538.7 km East and 3100.9 km North.

C. Process and Controls

1. Building 54

Building 54 is a wafer fabrication facility. The second floor of the two-story building houses two clean room modules. Both fabrication areas employ a series of manufacturing procedures referred to as layering, patterning, doping and heating processes. The frequency and sequence of these processes can vary depending on the desired nature of the final product.

Wet stations that house vats containing a variety of acid and caustic compounds are located throughout the clean rooms. Storage cabinets safely hold virgin chemicals until they are ready for use. The first floor of the building contains exhausted gas cabinets that supply process gases to the 'fab' operations.

The exhaust system for the building is divided into two sections. The west half exhaust is fed into a common duct that is divided into two wet scrubber systems, F54S01 and F54S02, at ground level. The east portion of the building exhaust is ducted to a common line that divides into two wet scrubbers (F54S03 and F54S04) on the east side of building. Also on the east side of Building 54 is a non-scrubbed exhaust fan F54E17 that handles air flow from several alligners, furnace source cabinets, and gas cabinets.

2. Building 59

Building 59 houses a wafer fabrication facility on the second floor. The fabrication area employs a series of manufacturing procedures referred to as layering, patterning,

doping and heating processes. The frequency and sequence of these processes can vary depending on the desired nature of the final product.

Thirteen exhausted wet stations that house vats containing a variety of acid and caustic compounds are in the fabrication facility. Five of these stations contain solvents, one of which is heated.

The ground floor of the two-story manufacturing area houses a process equipment support room that contains gas cabinets, chemical storage cabinets, vacuum pumps and drains. These exhausted units service the process equipment which resides above it in the fabrication area. Storage cabinets safely hold virgin chemicals until they are ready for use. Gas cabinets house cylinders that supply process gases to the 'fab' operations. In addition, several waste collection areas are exhausted. The ground floor also houses the site's distilled water plant and a mechanical equipment storage area.

The exhaust system for the building is divided between two scrubbers. Acid vapors are vented to scrubber number F59S01, while solvent exhaust streams are ducted to scrubber number F59S03. Both systems reside on the site grounds directly outside the west wall of the building.

3. General

In the controlled environment of the fabrication clean room, wafer surfaces first undergo acid and/or solvent cleaning followed by thermal oxidation in furnaces to form a layer of silicon dioxide on the wafer surface.

During the patterning process the wafers are initially baked and primed. Coaters then spin a thin layer of "photoresist" on the wafer, after which the wafers are soft baked. Next, the circuit pattern is projected onto the wafers via "alligners" or "steppers." Developers are then applied to remove unpolymerized areas of photoresist. This is followed by a solvent rinse.

Next, the wafers are hard-baked, inspected to determine accuracy, and etched by wet (acid bath) or dry (plasma vapor) mechanisms. Once etching is complete, the photoresist is stripped off the wafer using chemical baths or plasma techniques.

In another step of the fabrication process, "dopant" atoms are either diffused into the wafer in diffusion furnaces, or accelerated into the wafer using "ion implantation." Fumes from the vapor deposition furnaces are oxidized in burn boxes. The oxidized gases are then exhausted to scrubber systems. Additional material may be layered on the wafer surface in vapor and

crystal (epitaxial) deposition furnaces. Metallization to interconnect uppermost circuit layers is performed by deposition (using "sputtering" systems) or evaporation.

A material balance scheme will be used to account for the annual VOC/solvent emissions released into the atmosphere by the facility. A program of sampling and analysis will be used to assess the VOC/solvent emissions from each building.

The Standard Industrial Classification Codes are:

- Industry Group No. 367: Electronic Components and Accessories
- Industry No. : Semiconductors and Related Devices

The Source Classification Codes are:

- Major Group 36: Organic Solvent Evaporation
- Building 54 4-01-003-99 Tons VOC/solvent consumed
- Building 59 4-01-003-99 Tons VOC/solvent consumed

II. Rule Applicability

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code (FAC) Rules 17-2 and 17-4.

The application packages were deemed complete on July 1, 1988.

The existing facility is located in an area designated attainment for all pollutants. Therefore, review of emissions shall be in accordance with FAC Rule 17-2.500, Prevention of Significant Deterioration (PSD).

Since the facility is not one of those contained in Table 500-1, FAC Rule 17-2, the VOC/solvent threshold for triggering new source review pursuant to FAC Rule 17-2.500(5) is 250 TPY.

The following table presents the projected potential VOC/solvent emissions:

Table 1

Source	Potential VOC/solvent Emissions (TPY)
Building 54	
o F54S01[1]	9.9
o F54S02[1]	9.9
o F54S03[2]	37.2
o F54S04[2]	37.2
Building 59	
o F59S03[2]	0.6
Total:	94.8

Note: 1. Annual hours of operation at 4160.
2. Annual hours of operation at 8760.

The following table presents the projected potential VOC/solvent emissions from the facility:

Table 2

Building	Potential VOC/solvent Emissions (TPY)
4	10.96
51	29.34
54	82.58
57	0.95
58	2.59
59	0.57
60	min.
61	0.07
62	0.32
63	4.13
Total:	131.49

Since the potential emissions are less than 250 TPY for the facility, the potential emissions projected from Buildings 54 and 59 will be reviewed pursuant to FAC Rule 17-2.520, Sources Not Subject to PSD or Nonattainment Requirements.

Since there is no specific emission limiting standard contained in FAC Rule 17-2.600 nor is there any standards of performance for new stationary sources contained in FAC Rule 17-2.660, the sources will be permitted in accordance with FAC Rule 17-2.620, General Pollutant Emission Limiting Standards.

In FAC Rule 17-2.620(1)(a), 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. Pursuant to FAC Rule 17-2.620(2), no person shall cause, suffer, allow or

permit the discharge of air pollutants which cause or contribute to an objectionable odor. 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 according to FAC Rule 17-2.100(132).

The buildings operations/sources are subject to the provisions of FAC Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; 17-4.130: Plant Operation-Problems; and, 17-4.140: Reports.

III. Summary of Emissions

A. Emission Limitations

The regulated pollutant emissions from these buildings/ sources are VOC/solvents in accordance with FAC Rule 17-2.620.

Specific acid solutions are also being used during the manufacturing operations. There are no specific emission limiting standards for these specific acids. However, the acid vapors will be scrubbed to reduce emissions.

The following table presents the allowable VOC/solvent emissions and the potential acid vapor emissions from Buildings 54 and 59 in TPY:

Table 3

Building	Maximum Allowable VOC/Solvent Emissions	Potential Acid Vapor Emissions
54	94.2	
59	0.6	0.1

The permitted emissions are in compliance with all requirements of FAC Rules 17-2 and 17-4.

B. Air Quality Impacts

From the technical review of the application packages and supplementary material, an air quality analysis was not required.

V. Conclusion

The maximum allowable VOC/solvent emissions from Buildings 54 and 59 are in compliance with FAC Rules 17-2 and 17-4. Even though there are no emission standards for acid vapors, the

applicant has installed scrubber systems to control their emissions.

A system of material balance and sampling/analysis will be used to account for and verify pollutant emissions from each building and their scrubber systems.

The General and Specific Conditions listed in the proposed permits (attached) will ensure compliance with all applicable requirements of FAC Rules 17-2 and 17-4.

88/Rev/3

BM/Harris/2

Technical Evaluation
and
Preliminary Determination

Ready for Signature

Harris Semiconductor
Brevard County
Palm Bay, Florida

Construction Permit Numbers:
AC 05-147321
AC 05-150794

Florida Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Quality Management
Central Air Permitting

August 23, 1988

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processes can vary depending on the desired nature of the final product.

Wet stations that house vats containing a variety of acid and caustic compounds are located throughout the clean rooms. Storage cabinets safely hold virgin chemicals until they are ready for use. The first floor of the building contains exhausted gas cabinets that supply process gases to the 'fab' operations.

The exhaust system for the building is divided into two sections. The west half exhaust is fed into a common duct that is divided into two wet scrubber systems, F54S01 and F54S02, at ground level. The east portion of the building exhaust is ducted to a common line that divides into two wet scrubbers (F54S03 and F54S04) on the east side of building. Also on the east side of building 54 is a non-scrubbed exhaust fan F54E17 that handles air flow from several alligners, furnace source cabinets, and gas cabinets.

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Next, the wafers are hard-baked, inspected to determine accuracy, and etched by wet (acid bath) or dry (plasma vapor) mechanisms. Once etching is complete, the photoresist is stripped off the wafer using chemical baths or plasma techniques.

In another step of the fabrication process, "dopant" atoms are either diffused into the wafer in diffusion furnaces, or accelerated into the wafer using "ion implantation." Fumes from the vapor deposition furnaces are oxidized in burn boxes. The oxidized gases are then exhausted to scrubber systems. Additional material may be layered on the wafer surface in vapor and crystal (epitaxial) deposition furnaces. Metallization to interconnect uppermost circuit layers is performed by deposition (using "sputtering" systems) or evaporation.

A material balance scheme will be used to account for the annual VOC/solvent emissions released into the atmosphere by the facility. A program of sampling and analysis will be used to assess the VOC/solvent emissions from each building.

The Standard Industrial Classification Codes are:

- Industry Group No. 367: Electronic Components and Accessories
- Industry No. : Semiconductors and Related Devices

The Source Classification Codes are:

- Major Group 36: Organic Solvent Evaporation
- Building 54 4-01-003-99 Tons VOC/solvent consumed
- Building 59 4-01-003-99 Tons VOC/solvent consumed

II. Rule Applicability

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code (FAC) Rules 17-2 and 17-4.

The application package ~~for AC 05-150794 was deemed complete on June 10, 1988. The application package for AC 05-147321 was~~ were deemed complete on July 1, 1988.

The existing facility is located in an area designated attainment for all pollutants. Therefore, review of emissions shall be in accordance with FAC Rule 17-2.500, Prevention of Significant Deterioration (PSD).

Since the facility is not one of those contained in Table 500-1, FAC Rule 17-2, the VOC/solvent threshold for triggering new source review pursuant to FAC Rule 17-2.500(5) is 250 TPY.

The following table presents the projected potential VOC/solvent emissions:

Table 1

Source	Potential VOC/solvent Emissions (TPY)	
Building 54		
o F54501[1]	8.7	9.9
o F54502[1]	8.7	9.9
o F54503[2]	32.6	37.2
o F54504[2]	32.6	37.2
Building 59		
o F59503[2]	0.6	0.6
total:	83.2	94.8

Note: 1. Annual hours of operation at 4160.

2. Annual hours of operation at 8760.

The following table presents the projected potential VOC/solvent emissions from the facility:

Table 2

Building	Potential VOC/solvent Emissions (TPY)
4	10.96
51	29.34
54	82.58
57	0.95
58	2.59
59	0.57
60	min.
61	0.07
62	0.32
63	4.13
Total:	131.49

Since the potential emissions are less than 250 TPY for the facility, the potential emissions projected from Buildings 54 and 59 will be reviewed pursuant to FAC Rule 17-2.520, Sources Not Subject to PSD or Nonattainment Requirements.

Since there is no specific emission limiting standard contained in FAC Rule 17-2.600 nor is there any standards of performance for new stationary sources contained in FAC Rule 17-2.660, the sources will be permitted in accordance with FAC Rule 17-2.620, General Pollutant Emission Limiting Standards.

In Rule FAC 17-2.620(1)(a), ~~FAC,~~ 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. Pursuant to FAC Rule 17-2.620(2), ~~FAC States that~~ no person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. 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 according to FAC Rule 17-2.100(132), ~~FAC.~~

The buildings operations/sources are subject to the provisions of FAC Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; 17-4.130: Plant Operation-Problems; and, 17-4.140: Reports.

III. Summary of Emissions

A. Emission Limitations

The regulated pollutant emissions from these building/ sources are VOC/solvents in accordance with Rule 17-2.620, ~~FAC~~.

Specific acid solutions are also being used during the manufacturing operations. There are no specific emission limiting standards for these specific acids. However, the acid vapors will be scrubbed to reduce emissions.

The following table presents the allowable VOC/solvent emissions and the potential acid vapor emissions from Building 54 and 59 in TPY:

Table 3

Building	Maximum Allowable VOC/Solvent Emissions	Potential Acid Vapor Emissions
54	~~82.6~~ 94.2	
59	0.6	0.1

The permitted emissions are in compliance with all requirements of FAC Rules 17-2 and 17-4.

B. Air Quality Impacts

From the technical review of the application packages and supplementary material, an air quality analysis was not required. ~~a violation of Florida's ambient air quality standards should not occur~~.

V. Conclusion

The maximum allowable VOC/solvent emissions from Buildings 54 and 59 are in compliance with FAC Rules 17-2 adn 17-4. Even though there are no emission standards for acid vapors, the applicant has installed scrubber systems to control their emissions.

A system of material balance and sampling/analysis will be used to account for and verify pollutant emissions from each building and their scrubber systems.

The General and Specific Conditions listed in the proposed permits (attached) will ensure compliance with all applicable requirements of FAC Rules 17-2 and 17-4.