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Permittee:

Intel Corporation
Mail Stop RR5-491
4100 Sara Rd.
Rio Rancho, NM 87124-1025

NSR Air Quality Permit No. 0325-M11
Rio Rancho Facility
TEMPO No. 1103 - PRN20110002
AIRS No. 35-043-0005

Company Official:

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Mary Uhl
Bureau Chief
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Director,
Environmental
Protection Division

MAY 4 2011

Date of Issuance

Air Quality Permit No. 0325-M10-R2 is issued by the Air Quality Bureau of the New Mexico Environment Department (Department) to Intel Corporation (Permittee) pursuant to the Air Quality Control Act (Act) and regulations adopted pursuant to the Act including Title 20, Chapter 2, Part 72 of the New Mexico Administrative Code (NMAC), (20.2.72 NMAC), Construction Permits and is enforceable pursuant to the Act and the air quality control regulations applicable to this source.

This permit authorizes the modification and operation of the Rio Rancho Facility (Facility). The function of the Facility is to manufacture semi-conductor chips for use in the computer industry. This Facility is located in Township 12 North, Range 2 East, Sections 31 and 32, in Rio Rancho, Sandoval County, New Mexico. The Universal Transverse Mercator (UTM) coordinates for this Facility are UTM E 349153 m, UTM N 3898946 m, and UTM zone 13. The physical address of the company is 4100 Sara Road.

This revision consists of the addition of seven (7) regenerative thermal oxidizers (RTOs), ten (10) cooling towers, one (1) boiler, three (3) ammonia treatment systems, and one (1) bulk specialty solvent waste treatment system. Plant Site Emission Limits (PSELs) remain unchanged.

This permit supersedes all portions of Air Quality Permit No. 0325-M10-R2, issued April 21, 2011, except the portion requiring compliance tests. Compliance test conditions from previous permits are still in effect unless satisfactorily completed, in addition to compliance test requirements contained in this permit.

The Department has reviewed the permit application for the proposed revision and has determined that the provisions of the Act and ambient air quality standards will be met. Conditions have been imposed in this permit to assure continued compliance. 20.2.72.210.D. NMAC, states that any term or condition imposed by the Department on a permit is enforceable to the same extent as a regulation of the Environmental Improvement Board.

Pursuant to 20.2.75.11 NMAC, the Department will assess an annual fee for this Facility. This regulation set the fee amount at $1,500 through 2004 and requires it to be adjusted annually for the Consumer Price Index on January 1. The current fee amount is available by contacting the Department or can be found on the Department's website. The AQB will invoice the Permittee for the annual fee amount at the beginning of each calendar year. This fee does not apply to sources which are assessed an annual fee in accordance with 20.2.71 NMAC. For sources that satisfy the definition of "small business" in 20.2.75.7.F NMAC, this annual fee will be divided by two.

All fees shall be remitted in the form of a corporate check, certified check, or money order made payable to the "NM Environment Department, AQB" mailed to the address shown on the invoice and shall be accompanied by the remittance slip attached to the invoice.

Permit Conditions

Pursuant to 20.2.72 NMAC, and the specific regulatory citations, the Facility is subject to the following Conditions.

CONDITION 1. CONSTRUCTION AND OPERATION UNDER THIS PERMIT; NOTICE TO SUBSEQUENT OWNERS; ACCESS, POSTING OF PERMIT, CANCELLATION/REVOCATION, CONFIDENTIAL INFORMATION; APPEALS; AND PERMIT REOPENING

A. Intel shall construct and operate the Facility in compliance with the conditions of this

Permit and is authorized to operate 24 hours per day, 7 days per week, and 52 weeks per year with the sources of air emissions listed in Attachment A. New or replacement sources may require a permit revision.

B. Intel is allowed to make, without a permit revision or prior Department approval, physical or operational changes that are authorized or not prohibited by this Permit. This authorization includes changes in the processes or methods of operation, and changes in amount or type of materials or chemicals used, if:

i. such changes do not cause Facility emissions to exceed the Plant Site Emission Limits (PSELs) or other applicable limits;

ii. such changes comply with all applicable requirements under the state and federal Acts, and with all conditions of this Permit;

iii. Intel keeps records and provides information to the Department concerning such changes as required by this Permit; and

iv. the Department can verify the emissions as described in this Permit.

C. Use of HAPs other than those listed in Appendix X requires Department approval prior to use through the significant permit revision process under 20.2.72.219 NMAC, unless Intel demonstrates to the Department that use of such HAPs will not result in any emissions to the atmosphere.

D. Prior Department approval through the significant permit revision process under 20.2.72.219 NMAC is required for total potential emissions of a toxic air pollutant in excess of the screening level (specified in pounds per hour) in 20.2.72.502 NMAC - Toxic Air Pollutants and Emissions.

E. If at any time the Department determines that:

i. a condition of this Permit contains a material mistake;

ii. the Department relied upon information determined to be inaccurate in establishing a condition of this Permit; or

iii. a condition of this Permit is not adequate to determine compliance with any applicable state or federal air quality requirement, including the conditions of this Permit;

the Department may reopen the Permit, correct the inadequacy and reissue the Permit. Proceedings to reopen and revise the Permit shall affect only those parts of the Permit for which cause to reopen exists. The Department shall notify Intel by certified mail at least thirty (30) days in advance of the date on which the Department intends to reopen the Permit. The Department shall provide public notice and allow public participation regarding the revised condition only, as required by 20.2.72.206 NMAC - Public Notice and Participation, before reissuing the reopened Permit. The Department may, based on stack testing or other credible evidence, require Intel to revise emission factors in accordance with Condition 1.G of this Permit.

F. Addition, replacement, and reconfiguration of the tools and semiconductor production equipment is authorized under this Permit and does not require a permit revision or prior Department approval provided all other conditions of this Permit are met.

G. Intel shall make any decrease or increase in an emission factor listed in Tables 1, 3, Y, or Z of this Permit through the technical permit revision process in 20.2.72.219 NMAC.

H. Intel shall use records of fuel usage maintained during the year prior to issuance of this Permit, as necessary, to calculate the twelve (12) month rolling total emissions during the first year following issuance of this Permit.

I. The Permit and conditions apply in the event of any change in control or ownership of the Facility. An administrative permit revision is required in such case. Intel shall notify the succeeding owner of the Permit and conditions and shall notify the Department of the change in ownership within fifteen (15) days of that change.

J. The Department shall be given the right to enter the Facility at all reasonable times to verify the terms and conditions of this Permit. Intel, upon either a verbal or written request from an authorized representative of the Department, shall produce any records or information necessary to establish that the terms and conditions of this Permit are being met.

K. A copy of this Permit shall be retained at the plant site at all times and shall be made available to Department personnel for inspection upon request.

L. Any records, reports, or information that Intel claims if made public would divulge confidential business records or methods or processes entitled to protection as trade secrets of Intel shall be clearly marked as such in accordance with the provisions of 20.2.1 NMAC and be accompanied by a justification of the claim.

M. The Department may revoke this Permit if the applicant or permittee has knowingly and willfully misrepresented a material fact in the application for the Permit. Revocation will be made in writing, and administrative appeal may be taken to the Secretary of the Department within thirty (30) days. Appeals will be handled in accordance with the Department's Rules Governing Appeals From Compliance Orders.

N. 20.2.72.207 NMAC provides that any person who participated in a permitting action before the Department and who is adversely affected by such permitting action, may file a petition for hearing before the Environmental Improvement Board. The petition shall be made in writing to the Environmental Improvement Board within thirty (30) days from the date notice is given of the Department's action and shall specify the portions of the permitting action to which the petitioner objects, certify that a copy of the petition has been mailed or hand-delivered and attach a copy of the permitting action for which review is sought. Unless a timely request for hearing is made, the decision of the Department shall be final. The petition shall be copied simultaneously to the Department upon receipt of the appeal notice. If the petitioner is not the applicant or permittee, the petitioner shall mail or hand-deliver a copy of the petition to the applicant or permittee. The Department shall certify the administrative record to the board. Petitions for a hearing shall be sent to:

Secretary, New Mexico Environmental Improvement Board
1190 St. Francis Drive, Runnels Bldg. Rm. N2153
Santa Fe, New Mexico 87502

CONDITION 2. COMBUSTION-GENERATED POLLUTANTS

A. Definition of Combustion-Generated Pollutants

For purposes of this Permit, "combustion-generated pollutants" are the emissions of CO, NO_x, SO_2, TSP/PM10, and combustion-generated VOCs which are emitted by the Boilers, Regenerative Thermal Oxidizers (RTOs), Ammonia Treatment Systems, bulk specialty solvent waste treatment system, and emergency generators as a byproduct of combustion within these emission units."Nitrogen dioxide" or "NO2" or "NO_x" means nitrogen dioxide as defined in 20.2.2 NMAC.

B. Emissions Limits for Combustion-Generated Pollutants

i. Plant Site Emission Limits (PSELs) for NO_x and CO
The plant site emissions of NO_x and CO shall not exceed the following limits:

Pollutant	Twelve (12) Month Rolling Total (tpy)
NO_x	95.7
CO	94.7

The PSEL for total VOCs, which includes combustion-generated VOCs, is specified in Condition 4.B of this Permit.

ii. Annual Emission Limits for TSP/PM10

Total particulate matter emissions from the thermal oxidizers shall not exceed a twelve month rolling total of 14.2 tons.

iii. Hourly Emission Limits

The hourly emission rates shall not exceed the limits specified in Table CS.

C. Emissions of Combustion-Generated Pollutants

Emissions of combustion-generated pollutants do not pass through control equipment. Intel is limiting its potential to emit from these combustion sources to less than 100 tpy for each specified pollutant by restricting fuel usage and usage of particulate generating compounds.

i. Ammonia Treatment Systems and Bulk Specialty Solvent Waste Treatment System

a. The ammonia treatment systems and the bulk specialty solvent waste treatment system shall combust only natural gas (see Condition 2.C.v.).

b. Intel shall operate each ammonia treatment system in accordance with manufacturer's specifications. At all times the ammonia treatment systems are in operation, except during startup and cooldown periods, Intel shall maintain the temperature of the units at a minimum of 525°F and a maximum of 650°F. Intel shall continuously record the temperatures using continuous strip chart recorders or electronic equivalents. At any time the continuous recording mechanisms are not operating, Intel shall record the temperatures not less than once per hour during the time the control units are operating.

ii. 1250 BHP Boilers

a. The twelve (12) 1250 boiler-horsepower boilers are subject to federal New Source Performance Standards (NSPS) contained in the Code of Federal Regulations (CFR), Title 40, Part 60, Subpart A - General Provisions, and Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, and Intel shall comply with the notification requirements in Subpart A and the specific requirements of Subpart Dc.

b. The "boiler commission" or "boiler commission date" for each boiler shall be the date on which that boiler achieves the rate at which it will be operated under normal operating conditions or one hundred twenty (120) days from boiler startup, whichever is sooner.

c. The maximum firing rate for each boiler shall not exceed 54 million Btu/hour for any single hour.

d. The boilers shall combust only natural gas (see Condition 2.C.v.), except when circumstances beyond the control of Intel prohibit the use of natural gas (emergency situations) or when Intel tests the fuel delivery system and emergency boiler operations. Under these circumstances, Intel may combust No. 2 diesel fuel (or equivalent fuel oil, i.e., fuel oil that has emissions equal to or less than No. 2 diesel fuel) in any of the boilers. Testing for the No. 2 diesel fuel delivery system and emergency boiler operation shall be limited to thirty (30) minutes monthly for each boiler.

e. Intel shall meter each 1250 hp boiler for fuel usage using a meter with a design accuracy of ±1%. The heat content of the fuel burned shall be based on information provided by the fuel supplier.

1) The fuel meters shall be calibrated annually and the results submitted to the Department within thirty (30) days of the end of each calendar year.

f. Intel shall identify and record the firing lever position of each operational boiler at least every 5 minutes. The minimum level of data capture for each boiler shall be 90% for each calendar year. This data shall be compiled to reflect the fraction of time that the 1250 BHP boilers are operated in each lever position. Annually, no later than March 15, Intel

shall use this data to update the emission factors for the 1250 BHP boilers in Table 1, such that at that time the emission factors will be based on the most recent three years of operational data. This update of emission factors shall be accomplished by determining the average emission factor based on emission tests and fraction of time data for each lever position. For each lever position, the fraction of time that all boilers spend in that mode shall be multiplied by the highest emission factor of any boiler at that position. This derived number summed with the similarly derived numbers from all other lever positions will result in the average emission factor in Table 1. If Intel changes these emission factors, it shall do so in accordance with Condition 1.G.

iii. Emergency Generators

a. Testing of the emergency generators and fire pumps shall be limited to thirty (30) minutes each per month.

b. Operation of the emergency generators shall not exceed five hundred (500) hours each per year unless Intel obtains a permit revision allowing such use. For record-keeping requirements on emergency generator use, see Condition 8 of this Permit.

iv. Intel shall operate and maintain all combustion equipment in accordance with the manufacturers' specifications. Intel shall maintain records of the maintenance performed on all combustion equipment and shall make this information available to the Department upon request.

v. All natural gas used shall be pipeline quality, with no more than 0.25 grains of H_2S per 100 scf of gas.

D. Compliance Determinations for Combustion-Generated Pollutants

i. Calculation of Twelve (12) Month Rolling Total Emissions

a. Emissions of TSP/ PM10, NO_x, CO, and combustion-generated VOCs shall be calculated by summing the total emissions over the most recent twelve (12) calendar months in accordance with the formula specified below.

b. Emissions of NO_x, CO, and combustion VOCs for the Facility shall be the sum of the emissions calculated monthly for each combustion unit in accordance with the following formula:

Emissions = (Q) x (EF)

where:

Q = fuel usage (MMbtu/month for natural gas or 10^3 gal/month for No. 2 fuel oil)

EF = emission factor for each emissions unit and fuel type for boilers and RTOs as specified in attached Table 1; for other emission units, emission factor obtained from the manufacturer and accepted by the Department, or specified in the most recent version of AP-42.

c. Emissions of TSP/PM10 from RTOs shall be the sum of the emissions calculated monthly in accordance with the following formula:

PM = Q x EF

where:

PM = emissions of particulate matter
Q = mass of HMDS purchased plus beginning mass in stock minus ending mass in stock
EF = emission factor specified in Table Y, reflecting the portion of HMDS which is emitted as PM .

ii. Hourly Emissions from Combustion Sources

a. Except for TSP emissions from RTOs, compliance with the hourly emission rates specified in 2.B.iii shall be determined from records of fuel usage and equipment maintenance, unless otherwise determined by stack testing approved by the Department.

b. Compliance with hourly emission rates of TSP from RTOs shall be determined from records of fuel usage, HMDS usage and equipment maintenance, unless otherwise determined by stack testing approved by the Department.

iii. Emissions occurring as a result of fuel oil combustion shall be included in the determination of compliance with the allowable emission rates.

CONDITION 3. DUCTING OF NON-COMBUSTION POLLUTANTS

A. Intel may, without a permit revision or prior Department approval, replace, rebuild or reconfigure its air pollutant ducting system, but shall ensure that the pollutant ducting system is configured and maintained to convey Fab exhaust streams to the appropriate control device as specified in 3.B

B. Except as provided in Condition 3.C, Intel shall ensure that each pollutant generated by the Facility is conveyed to the appropriate control device as follows:

i. Any Fab process exhaust stream which contains solvent VOCs (including organic HAPs) shall be ducted to a Regenerative Thermal Oxidizer (RTO), except (a) when the pollutant concentration in the exhaust stream is too low for effective abatement; (b) the pollutant is not compatible with RTO operation, reducing the effectiveness of the unit; or (c) process exhaust streams where the only VOC component is ethylene glycol, which may be vented to the process scrubbers.

ii. Any Fab process exhaust stream which contains inorganic HAPs shall be ducted to a process scrubber, except (a) when the pollutant concentration in the exhaust stream is too low for effective abatement; (b) the pollutant is not compatible with process scrubber operation, reducing the effectiveness of the unit; or (c) those for which the only HAP component is solid arsenic

iii. With approval from the Department, Intel may duct emissions to the atmosphere or to an exhaust system other than the system specified above. Intel shall submit to the Department a demonstration that such change in ducting would not increase overall emissions of any pollutant over that which would occur if the emissions were sent to the specified system, and shall make such revisions to the emission factors as appropriate in accordance with Condition 1.G. Such approved changes are within the scope of this Permit and shall not constitute a permit revision.

C. Intel may vent emissions from wipe-down chemicals, such as isopropyl alcohol (IPA), used outside of process tools to the air or to general exhaust.

D. Intel shall track the usage of all chemicals used in manufacturing to enable the accurate identification of the potential components of any exit exhaust stream.

CONDITION 4. TOTAL EMISSIONS OF VOLATILE ORGANIC COMPOUNDS

A. Definition of Volatile Organic Compound

A volatile organic compound (VOC) is an air contaminant that has been defined as a volatile organic compound pursuant to 40 CFR 51.100(s). Solvent VOCs include non-HAP solvents and organic HAPs.

B. Plant Site Emission Limit (PSEL) for Volatile Organic Compounds.

The plant site emissions of VOCs shall not exceed a twelve (12) month rolling total of 96.5 tons.

C. Operation of Solvent VOC Emission Control Equipment (RTO)

i. Intel shall operate a solvent VOC air pollution control unit (a regenerative thermal oxidizer) on each solvent VOC exhaust stack on a continuous twenty-four (24) hour per day basis, except for: a) periods of start-up, shut-down, scheduled maintenance, and malfunction b) in the event of the loss of the natural gas supply for thermal oxidizer units; or c) during periods when solvent VOCs are not being emitted from a solvent exhaust stack being served by a control unit. The maximum duration of any single startup or cooldown period shall not exceed four (4) hours.

ii. Intel shall maintain the control units in accordance with the manufacturer's recommendations. Key spare parts for the control units, identified by the manufacturers of the units, shall be kept on site at all times.

iii. Intel shall not emit toxic metals listed pursuant to Section 112(b) of the Clean Air

Act, 42 U.S.C. 7412(b) (i.e., the list of hazardous air pollutants) or halogenated compounds, used in the manufacturing process in a production operation, into the influent streams to a control unit.

iv. Only natural gas shall be fired by the thermal oxidizers.

v. Intel shall monitor fuel flow and heat content of the natural gas to each thermal oxidizer unit individually.

vi. Intel shall operate each control unit in accordance with manufacturer's specifications. At all times a thermal oxidizer unit is in operation, except during startup and cooldown periods, and when VOC exhaust has been routed to another unit, Intel shall maintain the temperature of the Durr thermal oxidizers primary combustion chamber at a minimum of 1350°F, and a single hour average of at least 1360°F, plus or minus 10°F and the temperature of the Munters thermal oxidizers primary combustion chamber at a minimum of 1370°F, and a single hour average of at least 1385°F, plus or minus 15°F. Intel shall continuously record the temperatures using a continuous strip chart recorder or electronic equivalent. At any time the continuous recording mechanism is not operating, Intel shall record the temperatures not less than once per hour during the time the control unit is operating.

vii. Maintenance of each control unit shall be scheduled, to the extent possible, during periods when the production operation to which the control unit is connected is not in operation. No more than one (1) solvent VOC exhaust stack shall be uncontrolled because of scheduled maintenance of control units during the same time period.

viii. Any future permit applications for a new VOC emission source at the Rio Rancho Facility shall include a thermal oxidizer, or other equivalent emissions control device, unless Intel demonstrates to the satisfaction of the Department that the VOC emissions increase or the toxicity of those emissions, or combination thereof, is not significant and the emissions will meet applicable federal and state requirements, including ambient air quality standards.

ix. Intel shall notify the Department, as specified in Condition 9.A.vi, of any failure of any control unit to operate at the temperatures specified in Condition 4.C.vi, for any period of more than one hour in any twenty-four (24) hour period, except as provided in Conditions 4.C.i and 4.C.vi. In the event that the recording mechanism is not functioning, Intel shall report to the Department whenever two (2) or more hourly temperature readings fall below the temperatures specified in Condition 4.C.vi within a single twenty-four (24) hour period; and

x. When an RTO is not in operation, Intel shall take steps to minimize VOC emissions, including but not limited to routing the affected solvent exhaust stream to the back-up unit, if the exhaust system is equipped with an operational unit.

D. Compliance Determinations for Volatile Organic Compounds

i. Calculation of Twelve (12) Month Rolling Total Emissions

The twelve (12) month rolling total emissions of VOCs shall be calculated by summing the total emissions over the most recent twelve (12) calendar months in accordance with Conditions 4.D.ii, iii, iv, and v.

ii. Emissions from Storage Tanks
VOC emissions from storage tanks shall be determined using the most current version of the EPA TANKS Program.

iii. Emissions from Wipe-down Use

Any amount of VOC used outside of process tools for wipe-down shall be assumed to be emitted to the atmosphere.

iv. Other VOC Emissions

a. Liquid Chemical Baths

Emissions from the liquid chemical baths shall be calculated for each VOC using the standard evaporation rate equation recognized by EPA for use in compliance with Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112(r) of the federal Act or as specified in Condition 4.D.iv.b. This equation is:

$W = MKAp/RT$

where:

W = mass emissions of VOC
M = molecular weight
A = surface area
p = vapor pressure of liquid VOC at temperature T
R = ideal gas constant
T = temperature of liquid VOC
K = mass transfer coefficient, dependent upon air flow

b. Process VOC gases and chemicals not used in chemical baths.

Emission of process gases and chemicals shall be calculated for each VOC in accordance with the following formula:

VOC_i = Sum of $[(Q_i)(EF_i)]$
where:
VOC_i = mass of emissions of VOC_i
Q_i = mass of chemical i purchased plus beginning mass in stock minus ending mass in stock
EF_i = emissions factor specified in Table Z, reflecting the portion of chemical i which is emitted as VOC_i

v. Emissions from Combustion Sources

VOC emissions from combustion sources shall be calculated as specified in Condition 2.D.i.

CONDITION 5. HAZARDOUS AIR POLLUTANTS

A. Definition of Hazardous Air Pollutant

A hazardous air pollutant (HAP) is an air contaminant that has been listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Act. For purposes of this Permit, organic HAPs are also classified and regulated as VOCs.

B. Emission Limits for Hazardous Air Pollutants

The plant site emissions of HAPs as listed in Appendix X shall not exceed the limits specified in Table 2.

C. Emission Controls for Hazardous Air Pollutants

i. Condition 3 of this Permit establishes the requirements for ducting of HAPs to the proper control equipment. Condition 4.C of this Permit establishes the requirements for the operation and maintenance of the RTOs. Conditions 5.E, 7.C, 7.D, and 8.B (ii, iii and iv) of this Permit establish the requirements for testing, monitoring and recordkeeping for the RTO systems and process scrubbers.

ii. Intel shall operate the process scrubbers on a continuous twenty-four (24) hour per day basis except for periods of start-up, shut-down, scheduled maintenance, and malfunction or during periods when the Fab being served by the equipment is not operating.

D. Compliance Determinations for Hazardous Air Pollutants

i. Calculation of Twelve (12) Month Rolling Total Emissions

The twelve (12) month rolling total emission of HAPs shall be calculated by summing the total emissions over the most recent twelve (12) calendar months in accordance with Conditions 5.D.ii, iii, iv, and v.

ii. Emissions from Storage Tanks

HAP emissions from storage tanks shall be determined using the most current version of the EPA TANKS Program.

iii. Emissions from Wipe-down Use

Any amount of HAP used outside of process tools for wipe-down shall be assumed to be emitted to the atmosphere.

iv. Emissions from Liquid Chemical Baths

Emissions from the liquid chemical baths shall be calculated for each HAP using the standard evaporation rate equation recognized by EPA for use in compliance with Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA), Section 112(r) of the federal Act and other applications or as specified in Condition 5.D.v. This equation is:

$W = MKAp/RT$

where:

W = mass emissions of HAP
M = molecular weight
A = surface area
p = vapor pressure of liquid HAP at temperature T
R = ideal gas constant
T = temperature of liquid HAP
K = mass transfer coefficient, dependent upon air flow

v. Emissions of Process Gases and Chemicals Not Used in Chemical Baths (including arsenic and inorganic/organic process gases and chemicals)

Emission of process gases and chemicals shall be calculated for each HAP in accordance with the following formula:

$HAP_i = \text{Sum of } [(Q_j)(EF_{ji})]$

where:

HAP_i = mass of emissions of HAP_i
Q_j = mass of chemical j purchased plus beginning mass in stock minus ending mass in stock, which contributes to formation of HAP_i
EF_{ji} = emissions factor reflecting the portion of chemical j which is emitted as HAP_i (see Table 3)

E. Verification of Emissions Calculations by Stack Testing

i. Intel shall conduct initial stack testing for all HAPs for which emissions are calculated only by the evaporation rate equation specified in Condition 5.D.iv. During this testing Intel shall record the parameters used in the evaporation rate equation.

ii. Intel shall conduct annual stack testing for all HAPs listed in Table 3 and in use at the time of testing.

iii. Unless the Department approves otherwise, Intel shall conduct additional tests for HAPs if their emissions are calculated according to the equation in 5.D.v and one of the following circumstances exist: either the emission factor is already less than 1 and is being reduced, or the use of the HAP has just begun with an emission factor less than 1. Such tests shall be conducted within the next calendar quarter

after the change.

iv. Initial and annual testing shall be performed as specified in Condition 7 of this Permit.

v. The Department may require additional stack testing if the Department has reason to believe that the emissions of any HAPs subject to the annual testing requirement specified in this Condition has increased significantly.

CONDITION 6. TOXIC AIR POLLUTANTS

A. Definition of Toxic Air Pollutant

A Toxic Air Pollutant (TAP) is an air contaminant listed in 20.72.502 NMAC - Toxic Air Pollutants and Emissions.

B. Department Findings Regarding Toxic Air Pollutants

The Department finds that the permit application demonstrates that the total potential emissions of TAPs listed in the application do not exceed the screening levels (specified in pounds per hour) in 20.72.502. Therefore, the Department has determined that no ambient air quality modeling or emission limit is required for those TAPs.

i. If at any time the Department has reason to believe that the total potential emissions of a TAP may exceed the applicable screening level (specified in pounds per hour) in 20.72.502 NMAC, the Department may require Intel to submit a demonstration of compliance with 20 NMAC 72 Subpart IV.

ii. Demonstration of compliance with 20 NMAC 72 Subpart IV shall include:

a. a showing that the total potential emissions of the TAP are less than the screening level (specified in pounds per hour). The total potential emissions of the TAP shall be calculated in accordance with the methods of Condition 5.D of this Permit; and

b. if requested by the Department, stack testing using an EPA-approved or equivalent method approved by the Department.

CONDITION 7. TESTING

A. General Requirements

i. Intel shall notify the Department's Program Manager, Compliance and Enforcement Section at least thirty (30) days prior to the test date, unless otherwise approved by the Department and allow a representative of the Department to be present at the test. Intel shall arrange a pretest meeting with the Department at least thirty (30) days prior to the test date, unless otherwise approved by the Department, and shall observe the following pre-testing and testing procedures:

a. Intel shall provide for the Department's approval a written test protocol at least one (1) week prior to the anticipated pre-test meeting date. The protocol shall describe the test methods to be used (including sampling methods and calibration procedures), shall list the equipment or devices to be tested (including sample locations), and shall describe data reduction procedures. Any variation from established sampling and analytical procedures or from Facility operating conditions shall be presented for Department approval.

b. The test protocol and compliance test report shall conform to the standard format specified by the Department. The most current version of the format may be obtained from the Enforcement and Compliance Section of the Air Quality Bureau.

c. Intel shall provide (a) sampling ports adequate for the test methods applicable to the Facility, (b) safe sampling platforms, (c) safe access to sampling platforms and (d) utilities for sampling and testing equipment. Sample ports of a size compatible with the test methods shall be located on the stack of each source to be tested in accordance with the provisions of 40 CFR 60, Appendix A, Method 1. Each stack shall be of sufficient height and diameter so that a representative test of the emissions can be performed in accordance with EPA Method 1.

d. During any boiler tests the fuel flow, firing rate, percent oxygen, and quadrant lever position shall be monitored and recorded. This information shall be included with the test report that is required to be furnished to the Department.

e. Where necessary to prevent cyclonic flow in the stacks, flow straighteners shall be installed.

f. The tests on combustion equipment shall be conducted at the loads specified by Department and contained in this condition.

ii. The initial stack tests and the first set of annual stack tests shall be completed within one hundred eighty (180) days of the date of issuance of this Permit. All testing of HAPs emissions during the initial and annual test periods shall be started and completed within a period of one calendar quarter. Initial testing for any new equipment authorized by this permit shall be conducted within 180 days of unit startup.

iii. Conditions from previous permits for initial compliance tests on new equipment such as boilers continue in effect until they are completed and are in addition to the compliance tests requirements contained in this Permit.

iv. Alternative test methods, where authorized by this permit, shall conform to the requirements of 40 CFR 51.212.

B. Boilers: NO_x, CO, and VOCs

i. On an annual basis following boiler maintenance turnaround, Intel shall test the emission profile of one (1) 1250 BHP boiler. In addition, Intel shall test one (1) 1250 BHP boiler at a single load setting. The Department shall identify the boilers and the single load setting to be tested under this condition.

ii. During the next emission profile testing specified in Condition 7.B.i, Intel shall conduct testing to determine the VOC emission rate (lb/MMBtu) of one 1250 BHP boiler.

iii. At any time, the Department may require testing of any of the 1250 BHP boilers to verify the validity of the boiler emission factors in Table 1.

iv. If the Department has reason to believe that the emissions profile of any 1250 BHP boiler has changed, the Department may require Intel to conduct additional tests to determine whether the boiler emission factors specified in Table 1 have changed.

v. Intel shall conduct tests in accordance with applicable EPA Reference Method 5 for particulate matter, Method 25A for VOCs, Method 7E for NO_x, and Method 10 for CO contained in 40 CFR 60, Appendix A, and with the requirements of 40 CFR 60.8(f) when testing new boilers. The results of the NO_x tests shall be expressed as nitrogen dioxide (NO_2) using a molecular weight of 46 lb/lb-mole in all calculations (each ppm of NO/NO_2 is equivalent to 1.194×10^{-7} lb/scf).

vi. For emissions profile testing for NO_x and CO on the 1250 BHP boilers, Intel shall use Method 7E and 10, but the Department may allow a single one (1) hour test at each of the ten (10) load settings of those boilers.

vii. Intel shall determine the oxygen ($\%O_2$) in the stack gas by using EPA Method 3 or 3A. Intel may determine the stack volume flow using an F factor, if approved by the Department, or by using the flow methods in 40 CFR 60, Appendix A.

viii. If the Department finds, as a result of the profile testing of the 1250 BHP boilers specified in Condition 7.B.i through 7.B. vi of this Permit, that 1) the boiler emissions exceed the rates calculated by the boiler emission factors specified in Table 1 or 2) any emissions factor in the tested emissions profile exceeds the corresponding lever position value used in development of the average emission factor, the Department may require Intel to revise the boiler emission factors as described in 2.C.ii.f.

ix. If the Department finds that the boiler emission rate from the single load test of the 1250 BHP boilers exceeds the corresponding lever position value used in development of the average emission factor, the Department may require Intel to revise the boiler emission factors as described in 2.C.ii.f.

x. For each boiler, Intel shall provide a one-quarter (1/4) inch stainless steel sampling line adjacent to the sampling ports and extending down to within four (4) feet above ground level to provide access for future audits. The line shall extend into the stack a distance of 1/4 the stack diameter, but not less than one inch from the stack wall. The sampling line shall be maintained clear of blockage at all times. This line shall be installed no later than one hundred and eighty (180) days from the date of this Permit and shall be in place at the time of any required compliance tests.

C. RTO

i. Intel shall conduct annual tests of the exit exhaust streams of the RTO stacks as required in Condition 5.E for HAPs ducted to the RTO stacks. Intel shall use EPA Method 18 or, with the Department's approval, another appropriate method for these tests.

ii. Intel shall conduct emissions testing to measure the concentration of total hydrocarbons and VOCs and the air flow from each stack. Intel shall begin emissions testing no later than ninety (90) days following issuance of this Permit

a. The emissions testing system shall consist of a portable flame ionization detector (FID) and Fourier Transform Infrared Detector_(FTIR) that measure total hydrocarbons and VOCs, a method for analyzing flue gas for O_2 and CO_2 concentrations for stack gas molecular weight determination, a method for determining stack gas moisture and a flow measurement device that measures stack air flow. The testing system shall measure the stack gas concentration of total hydrocarbons and VOCs (ppmv), O_2, CO_2 and moisture content (%), and stack gas flow rate (acf). The FID, FTIR, O_2 and CO_2 analyzers, and flow meters shall be calibrated and maintained at a frequency and by a method specified by the manufacturer and approved by the Department. Intel shall inspect the testing system during each sampling interval at each stack to ensure that representative samples of the total hydrocarbons and VOC exhaust streams are being obtained and analyzed.

b. Intel shall test one solvent exhaust stack at a time for at least three hundred thirty-six (336) hours each quarter. All solvent exhaust stacks shall be tested during each quarter.

c. Intel shall operate the FID for the entire time of the test period specified in 7.C.ii.b. above to measure total hydrocarbons from each solvent exhaust stack.

d. Intel shall measure O_2, and CO_2 concentrations, moisture and stack gas flow rate and operate the FTIR in 8-hour increments at the start, mid-point, and end of the FID testing (24 hours total) for analysis of the VOC stack emissions.

e. After the first year of monitoring, NMED may direct Intel to decrease or discontinue the use of the FID and increase the use of the FTIR and

measurements of O_2, CO_2, and stack gas flow rate if NMED determines the emissions testing system is not accurately measuring VOC emissions.

f. No later than thirty (30) days prior to the start of testing, Intel shall propose, for approval by the Department, standard procedures for operating, monitoring, and quality assurance for the testing system. The FID proposal shall conform to the requirements of 40 CFR 60.13 and 40 CFR 60 Appendix A, Method 25A. The FTIR proposal shall conform to the requirements of EPA Test Method 320 - Measurement of Vapor Phase Organic and Inorganic Emissions by Extractive Fourier Transform Infrared (FTIR) Spectroscopy, and Addendum to Test Method 320 - Protocol for the Use of Extractive Fourier Transform Infrared (FTIR) Spectrometry for the Analyses of Gaseous Emissions from Stationary Sources.

g. Intel shall conduct an initial certification of the testing system within ninety (90) days of the date of issuance of this Permit. The FID shall be certified in accordance with 40 CFR 60, Appendix A, Method 25A, and Appendix B, Performance Specification 8. The FTIR shall be certified in accordance with 40 CFR 63, Appendix A, Method 320, and Appendix B, Proposed Performance Specification 15. Intel shall conduct the certification of the flow meter in accordance with 40 CFR 60, Appendix A, Methods 1-4, and Appendix B, Performance Specification 6. Intel shall re-certify the testing system at least every three (3) years from the date of initial certification or subsequent re-certification.

h. Two (2) years after issuance of this Permit, Intel may submit a proposal to modify or discontinue the test requirements in Condition 7.C.ii (a through g). A proposal to modify the test requirements shall include a demonstration of the adequacy of the proposed testing for evaluating the validity of the VOC emissions calculations specified in Condition 4.D.iv. A proposal to discontinue the test requirements shall include methods to evaluate the validity of the VOC emissions calculations specified in Condition 4.D.iv. Intel shall obtain Department approval before implementing such proposed change or discontinuance in testing, but such change or discontinuance, if approved, is within the scope of this Permit and shall not constitute a Permit revision.

D. Process Scrubbers

i. Intel shall conduct annual tests of the exit exhaust streams of process scrubber stacks as required in Condition 5.E.ii for HAPs ducted to the scrubbers. All operational process scrubber stacks shall be tested in each annual test period, except as specified in Condition 7.D.ii of this Permit.

ii. After the completion of the first two annual tests, Intel may submit a statistically valid proposal for annual testing of less than all, but no less than one-third (1/3) of a random selection of the process scrubber stacks. The proposal shall include a demonstration of the adequacy of the proposed sampling method for obtaining estimates of Facility emissions from the process scrubber stacks. Intel shall obtain

Department approval before implementing a change in testing, but such approved change is within the scope of this Permit and shall not constitute a permit revision.

iii. For the tests required by Condition 7.D, Intel shall use EPA Compendium Method IP-9 or a FTIR for HCl and HF, EPA Method 26A for Cl_2, or other methods approved by the Department. For all other HAPs, Intel shall use test methods approved by the Department. The duration of the test for each stack shall be no less than eight (8) continuous hours constituted by consecutive 4 hour measurements, unless otherwise approved by the Department. For these tests, Intel shall comply with the notification requirements specified in Condition 7.A.i.

E. Ammonia Treatment Systems

i. Intel shall conduct initial compliance testing for NO_x and CO in accordance with 20.2.72.213 NMAC.

ii. Intel shall conduct initial compliance testing for ammonia (NH_3) emissions.

iii. Initial compliance testing procedures.

a. The emissions testing shall consist of a Fourier Transform Infrared Detector (FTIR) that measures NO_x, CO and NH_3, a method for analyzing flue gas for O_2 and CO_2 concentrations for stack gas molecular weight determination, a method for determining stack gas moisture and a flow measurement device that measures stack air flow. Testing shall measure the stack gas concentration of NO_x, CO and NH_3, O_2, CO_2 and moisture content (%), and stack gas flow rate (acf). The FTIR, O_2 and CO_2 analyzers, and flow device shall be calibrated and maintained at a frequency and by a method specified by the manufacturer and approved by the Department.

b. The compliance tests shall be conducted in accordance with the procedures defined in 40 CFR 60, Appendix A, Test Methods and further guided by EPA Test Method 320 - Measurement of Vapor Phase Organic and Inorganic Emissions by Extractive Fourier Transform Infrared (FTIR) Spectroscopy, and Addendum to Test Method 320 - Protocol for the Use of Extractive Fourier Transform Infrared (FTIR) Spectrometry for the Analyses of Gaseous Emissions from Stationary Sources.

c. The duration for each test run shall be 60 minutes and each performance test shall consist of three separate runs. For the purpose of determining compliance with an applicable emission limit, the arithmetic mean of results of the three runs shall apply.

iv. Intel shall sample and test the ammonia removal catalyst and NO_x removal catalyst every six months. The sampling and testing shall be conducted per manufacturer's recommendations. The catalyst sampling and testing is not subject to Specific Condition 7.A. Record-keeping requirements are identified in specific condition 8.B.v.c.

CONDITION 8. RECORDKEEPING

A. General

i. Intel shall maintain records of changes in the processes or methods of operation, changes in the amount or type of materials and chemicals used, and physical changes to the Facility, sufficient to demonstrate that:

a. the emissions after the change do not exceed the PSELs or other applicable limits in this Permit;

b. the changes will not reduce the Department's ability to ensure compliance with this Permit; and

c. the changes are within the scope of this Permit and applicable laws and regulations.

ii. Intel shall monitor and record all information used to complete compliance records and to perform emissions calculations.

iii. Intel shall keep records of the production level, expressed as percentage of full capacity, of each Fab. The records of any solvent VOC air pollution control unit exhaust stack test or acid gas scrubber exhaust stack test shall include the associated production level expressed as percentage of full capacity of that Fab.

iv. Intel shall maintain records documenting maintenance of combustion equipment in 2.C.iv and ducting of pollutants as required in Condition 3.

v. Intel shall keep records to support each parameter used to calculate emissions through the evaporation rate equation;

B. Intel shall monitor and record the following information:

i. Boilers/Emergency Generators

a. annual natural gas fuel meter calibration reports;

b. hours of operation for each emergency generator;

c. calculations used to determine emission rates;

d. natural gas fuel flow and fuel heat content for each boiler;

e. records as required in Condition 2.C ii.a and 2.C.ii.f; and

f. records of the date, time, and nature of maintenance or repairs performed on the boilers.

ii. RTO

a. hours of the day and days of the week and month of solvent VOC air pollution control unit down time, scheduled and unscheduled maintenance as required in Condition 4.C.ix;

b. weekly record of pressure drop across RTOs;

c. records of the date, time, and nature of maintenance or repairs performed on the solvent VOC air pollution control units;

d. hexamethyldisilazane (HMDS) purchase records and the records used to calculate the thermal oxidizer particulate emissions;

e. the date and time of the startup and shutdown of each RTO;

f. natural gas fuel flow and fuel heat content for each oxidizer; and

g. the operating temperatures required in 4.C.vi.

iii. Solvent Exhaust Stack VOC Emissions Testing System

a. records of the certifications and calibrations of the FID, FTIR, O_2 and CO_2 analyzers, and volume flow meters;

b. records of data capture and any breakdown of the testing system, the reasons for the breakdown, and the corrective measures taken; and

c. records of the information required in Condition 9.A.iii.e of the Permit.

iv. Process Scrubbers

a. maintenance and operational logs for the process scrubbers; and

b. weekly checks made on the process scrubber recirculation water flow rates (in gallons per minute), replacement of the packing, and visual checks of the packing and spray nozzles for plugging.

v. Ammonia Treatment Systems

a. Maintenance and operational logs for the ammonia treatment systems;

b. Air temperature, air flow, and air pressure;

c. Results of the semi-annual sampling of the catalytic material conducted per manufacturer's recommendations.

vi. Toxic Air Pollutants

Records of the estimated total potential emissions per Toxic Air Pollutant as calculated with the methods of Condition 5.D of this Permit.

vii. Chemical Purchase, Usage, and Waste Disposal

a. for tanks storing solvent VOCs or HAPs, the tank dimensions, throughput and other information necessary to determine emissions from the storage tanks; and

b. the total monthly purchases and changes in stock of all chemicals used to calculate emissions including VOCs, HAPs, TAPs, and precursors of HAPs and TAPs.

viii. Miscellaneous Combustion Sources

a. total natural gas fuel usage for miscellaneous combustion sources.

ix. Retention of Records - Intel shall maintain these records on-site for a minimum of five (5) years from the time of recording.

CONDITION 9. REPORTING

A. General Requirements

i. Intel shall notify the Department in writing of:

a. the anticipated date of initial startup of each source, including each boiler, not less than thirty (30) days prior to the date;

b. the actual date of initial startup of each source within fifteen (15) days after the startup date;

c. the oxidizer and boiler serial number within fifteen (15) days after the initial startup date;

d. any change of operators, or location of the oxidizers within fifteen (15) days of such change;

e. any necessary update or correction no more than sixty (60) days after Intel knows or should have known of the condition necessitating the update or correction of the Permit;

f. any increases in emission factors as required in Condition 1.G; and

g. fuel meter calibrations as required in 2.C.ii.e.1.

ii. The result of any partial or complete test conducted as a requirement of a condition of this Permit or conducted to demonstrate compliance with a condition of this Permit shall be submitted electronically to the Department within thirty (30) days after the completion of the test. The results of testing required in condition 5.E.i shall include the parameters of the evaporation rate equation recorded during the test.

iii. Intel shall submit a quarterly report to the Department, in hard copy and on diskette or other electronic media. The report shall be submitted to the Department within forty-five (45) days of the end of each calendar quarter. The report shall include a spread sheet containing:

a. the twelve (12) month rolling total emissions of NO_x, CO, VOCs, individual and total HAP, and particulates from HMDS;

b. in quarterly reports for quarters in which the annual stack testing required under Condition 7.D of this Permit is performed, the calculated annual emissions of HAPs from the test data;

c. the fuel usage in scf for each boiler and RTO, total natural gas fuel usage for miscellaneous combustion sources, and the heat content of the natural gas in units of btu/scf;

d. the hours of emergency generator use;

e. test results obtained for the period of testing the solvent VOC air pollution control unit exhaust stacks, including:

1) the exhaust flow rate (in dry standard cubic feet per hour) and temperature (in degrees Fahrenheit); and

2) for each solvent VOC air pollution control unit exhaust stack, the average total hydrocarbon and VOC concentrations (in parts per million volume, dry basis) and average emission rate of VOCs in pounds per hour;

f. each factor used in the equations used to calculate emissions including the parameters of the evaporation rate equation;

g. the average total potential emissions of TAPs in pounds per hour calculated for the quarter based on usage or the equation specified in Condition 6.B;

h. the total monthly purchases and changes in stock of all chemicals used to calculate emissions including VOCs, HAPs, TAPs, and precursors of HAPs and TAPs; and

i. production level expressed as percentage of full capacity of each source Fab associated with emissions test data.

iv. All calculations shall be computed in accordance with Conditions 2, 4 and 5 and Tables 1, 3,Y, and Z of this Permit.

v. Excess emissions shall be reported as required by 20.2.7 NMAC - Excess Emissions.

vi. Intel shall notify the Department via email within ten (10) days after the

equipment has returned to normal operation for equipment downtimes specified in 4.C.ix and 5.C.ii. Notification shall include the equipment ID, date and time the unit went down, date and time the unit returned to normal operation, total time the equipment was down, and the reason for the downtime. The reason shall be listed as either preventative maintenance (PM), corrective maintenance (CM) or a brief description of the malfunction.

vii. All submittals required by this Permit shall be addressed to:

Program Manager, Compliance and Enforcement Section
New Mexico Environment Department
Air Quality Bureau
1301 Siler Road, Building B
Santa Fe, New Mexico 87507-3113

B. Boilers

Intel shall report to the Department any change to the boiler burner fuel distribution system, the burner, or the burner air distribution system of any boiler and the effect of such change on the boiler emissions.

Table 1
Emission Factors for Boilers, RTOs, Ammonia Treatment System and Miscellaneous Combustion Sources

	Emission Factors (EF)						
	TSP/ PM10	**SO_2**	**NO_x**	**CO**	**VOC**	**EF Units**	**Basis for EF**
1250 BHP Boilers Natural Gas	0.0045	0.6 lb/MMscf	0.04	0.0001	0.0027	TSP,NO_x, CO,VOC- lb/MMbtu	Emission profile testing (NO_x, CO); Mfr's data (TSP); AP42 (SO_2)
1250 BHP Boilers #2 fuel oil	2	71	20	5	0.2	lb/10^3 gal	AP-42, Table 1.3.2, Jan. 1995
Durr Thermal Oxidizers	7.6 lb/MMscf	0.6 lb/MMscf	0.26	0.042	5.5 lb/MMscf	NO_x,CO - lb/MMbtu	Stack testing (NO_x, CO); AP-42 (SO2 , TSP, VOC)
Munters Thermal Oxidizers	7.6 lb/MMscf	0.6 lb/MMscf	50	84	5.5 lb/MMscf	NO_x,CO - lb/10^6 scf	AP-42 (NO_x*, CO*, SO2, TSP, VOC)
Ammonia Treatment Systems	7.6 lb/MMscf	0.6 lb/MMscf	0.06	0.3	5.5 lb/MMscf	NO_x,CO - lb/MMbtu	Mfg. data (NO_x, CO); AP-42 (SO2 , TSP, VOC)
Misc. Combustion Sources	7.6 lb/MMscf	0.6 lb/MMscf	100	84	5.5 lb/MMscf	NO_x,CO - lb/10^6 scf	AP-42 Tables 1.4-1 & 1.4-2

*AP-42 emission factors for NO_x and CO shall be used for the Munters RTOs until the units have been tested and site specific emission factors are developed.

Attachment A
Air Emission Sources

Boilers		
Source	**Stack**	**Description**
blr-32-gd3-1	blr-32-gd3-1s	Boiler 1 - 1250 BHP
blr-32-gd3-2	blr-32-gd3-2s	Boiler 2 - 1250 BHP
blr-32-gd3-3	blr-32-gd3-3s	Boiler 3 - 1250 BHP
blr-32-gd3-4	blr-32-gd3-4s	Boiler 4 - 1250 BHP
blr-32-gd3-5	blr-32-gd3-5s	Boiler 5 - 1250 BHP
blr-32-gd3-6	blr-32-gd3-6s	Boiler 6 - 1250 BHP
BCP Boiler 7	BCP Boiler 7s	Boiler 7 - 1250 BHP
BCP Boiler 8	BCP Boiler 8s	Boiler 8 - 1250 BHP
BCP Boiler 9	BCP Boiler 9s	Boiler 9 - 1250 BHP
BCP Boiler 10	BCP Boiler 10s	Boiler 10 - 1250 BHP
BCP Boiler 11	BCP Boiler 11s	Boiler 11 - 1250 BHP
ecs-boi-97	ecs-boi-97s	Boiler 9.7 - 1250 BHP
ecs-boi-98	ecs-boi-98s	Boiler 9.8 - 1250 BHP
Thermal Oxidizers		
Source	**Stack**	**Description**
voc-16-np2-1	voc-16-np2-1s	Fab 11X Bridge Thermal Oxidizer (Durr)
voc-16-lt2-1	voc-16-lt2-1s	Fab 11X Fab Thermal Oxidizer (Durr)
VOC138-1-120	VOC138-1-120-1s/VOC138-1-120-2s	Fab 11X Munters 1
VOC138-2-120	VOC138-2-120-1s/VOC138-2-120-2s	Fab 11X Munters 2
VOC138-3-120	VOC138-3-120-1s/VOC138-3-120-2s	Fab 11X Munters 3
F11Xe Munters 1	F11Xe Munters 1s	Fab 11Xe Munters 1
F11X Munters 5	F11X Munters 5s	Fab 11X Munters 5
F11X Munters 6	F11X Munters 6s	Fab 11X Munters 6
F11Xe Munters 2	F11Xe Munters 2s	Fab 11Xe Munters 2
F11X Munters 8	F11X Munters 8s	Fab 11X Munters 8
F11Xe Munters 3	F11Xe Munters 3s	Fab 11Xe Munters 3
F11X Munters 10	F11X Munters 10s	Fab 11X Munters 10
F11Xe Munters 11	F11Xe Munters 11s	Fab 11Xe Munters 11
F11Xe Munters 12	F11Xe Munters 12s	Fab 11Xe Munters 12
F11Xe Munters 13	F11Xe Munters 13s	Fab 11Xe Munters 13
F11Xe Munters 14	F11Xe Munters 14s	Fab 11Xe Munters 14
F11X Munters 15	F11X Munters 15s	Fab 11X Munters 15
F11X Munters 16	F11X Munters 16s	Fab 11X Munters 16
F11X Munters 17	F11X Munters 17s	Fab 11X Munters 17
Other Sources		
Source	**Stack**	**Description**
OX293-0-70	OX293-0-70s	Ammonia Treatment System
F11Xe ATS 1	F11Xe ATS 1s	Ammonia Treatment System
F11Xe ATS 2	F11Xe ATS 2s	Ammonia Treatment System
F11Xe ATS 3	F11Xe ATS 3s	Ammonia Treatment System
F11Xe BSSW 1	F11Xe BSSW 1s	Bulk Specialty Solvent Waste Treatment System

Attachment A (continued)
Air Emission Sources

Process Scrubbers

Source	Stack	Description
sc-12-np2-1	sc-12-np2-1s	Fab 11XB Scrubber
sc-12-np2-2	sc-12-np2-2s	Fab 11XB Scrubber
sc-12-np2-3	sc-12-np2-3s	Fab 11XB Scrubber
sc-12-np2-4	sc-12-np2-4s	Fab 11XB Scrubber
sc-12-lt2-1	sc-12-lt2-1s	Fab 11XF Scrubber
sc-12-lt2-2	sc-12-lt2-2s	Fab 11XF Scrubber
sc-12-lt2-3	sc-12-lt2-3s	Fab 11XF Scrubber
sc-40-lt2-1	sc-40-lt2-1s/sc-40-lt2-2s	Fab 11XF Scrubber
sc-40-lt2-2	sc-40-lt2-1s/sc-40-lt2-2s	Fab 11XF Scrubber
sc-40-np2-1	sc-40-np2-1s	Fab 11XB Scrubber
sc-40-np2-2	sc-40-np2-2s	Fab 11XB Scrubber
sc-40-np2-3	sc-40-np2-3s	Fab 11XB Scrubber
sc-12-fb1-1	sc-12-fb1-1s	F11NX Scrubber
sc-12-fb1-2	sc-12-fb1-2s	F11NX Scrubber
sc-12-fb1-3	sc-12-fb1-3s	F11NX Scrubber
sc-12-fb1-4	sc-12-fb1-4s	F11NX Scrubber
sc-12-fb1-5	sc-12-fb1-5s	F11NX Scrubber
sc-12-fd1-3	sc-12-fd1-3s	F11NX Scrubber
sc-12-fd1-6	sc-12-fd1-6s	F11NX Scrubber
sc-12-cr1-1	sc-12-cr1-1s	C4 Scrubber
sc-12-cr1-2	sc-12-cr1-2s	C4 Scrubber
RRGC_SC-12-GC1-1	RRGC_SC-12-GC1-1s	CUB Scrubber
RRGC_SC-133-3-100	RRGC_SC-133-3-100s	CUB Scrubber
RRGC_SC-12-GC1-2	RRGC_SC-12-GC1-2s	CUB Scrubber
RRGC_SC-133-4-100	RRGC_SC-133-4-100s	CUB Scrubber
F11Xe Scrubber 3	F11Xe Scrubber 3s	F11Xe Scrubber
F11Xe Scrubber 4	F11Xe Scrubber 4s	F11Xe Scrubber
F11Xe Scrubber 5	F11Xe Scrubber 5s	F11Xe Scrubber
F11Xe Scrubber 6	F11Xe Scrubber 6s	F11Xe Scrubber
F11Xe Scrubber 7	F11Xe Scrubber 7s	F11Xe Scrubber
F11Xe Scrubber 8	F11Xe Scrubber 8s	F11Xe Scrubber
F11Xe Scrubber 9	F11Xe Scrubber 9s	F11Xe Scrubber
PUB Scrubber 4	PUB Scrubber 4s	PUB Scrubber
F11Xe Scrubber 10	F11Xe Scrubber 10s	F11Xe Scrubber
F11Xe Scrubber 11	F11Xe Scrubber 11s	F11Xe Scrubber
PUB Scrubber 1	PUB Scrubber 1s	PUB Scrubber
PUB Scrubber 2	PUB Scrubber 2s	PUB Scrubber
PUB Scrubber 3	PUB Scrubber 3s	PUB Scrubber
F11Xe Scrubber 1	F11Xe Scrubber 1s	F11Xe Scrubber
F11Xe Scrubber 2	F11Xe Scrubber 2s	F11Xe Scrubber
RRFB-SC142-1-00	RRFB-SC142-1-00s	F11NX Scrubber
RRFB-SC142-2-00	RRFB-SC142-2-00s	F11NX Scrubber
RRFD-SC142-1-00	RRFD-SC142-1-00s	F11NX Scrubber

Notes: If equipment is replaced/relocated a new and unique number will be assigned as part of the required permitting process.
Sources with negligible or no emissions such as emergency gas pad scrubbers, emergency generators, ventilation exhaust, etc. are not individually identified in this Attachment

Table CS
Hourly Emission Limits for Combustion Sources

Sources	Stacks	Description	Fuel	TSP/ PM10 (lb/hr)	SO2 (lb/hr)	CO (lb/hr)	NO_x (lb/hr)
blr-32-gd3-1 through blr-32-gd3-6 BCP Boiler 7 through BCP Boiler 11 ecs-boi-97 ecs-boi-98	blr-32-gd3-1s through blr-32-gd3-6s BCP Boiler 7s through BCP Boiler 11s ecs-boi-97s ecs-boi-98s	Boilers 1-11, 1250 BHP Boilers 9.7 and 9.8	natural gas	0.24	0.03	5.60	2.92
			#2 fuel oil	0.8	27.5	1.9	7.8
voc-16-np2-1 voc-16-lt2-1	voc-16-np2-1s voc-16-lt2-1s	RTOs** (Durr)	natural gas	1.0	0.002	0.6	1.0
VOC138-1-120 VOC138-2-120 VOC138-3-120 F11Xe Munters 1 F11X Munters 5 F11X Munters 6 F11Xe Munters 2 F11X Munters 8 F11Xe Munters 3 F11X Munters 10 F11Xe Munters 11 F11Xe Munters 12 F11Xe Munters 13 F11Xe Munters 14 F11X Munters 15 F11X Munters 16 F11X Munters 17	VOC138-1-120-1s/VOC138-1-120-2s VOC138-2-120-1s/VOC138-2-120-2s VOC138-3-120-1s/VOC138-3-120-2s F11Xe Munters 1s F11X Munters 5s F11X Munters 6s F11Xe Munters 2s F11X Munters 8s F11Xe Munters 3s F11X Munters 10s F11Xe Munters 11s F11Xe Munters 12s F11Xe Munters 13s F11Xe Munters 14s F11X Munters 15s F11X Munters 16s F11X Munters 17s	RTOs** (Munters)				
OX293-0-70 F11Xe ATS 1 F11Xe ATS 2 F11Xe ATS 3	OX293-0-70s F11Xe ATS 1s F11Xe ATS 2s F11Xe ATS 3s	Ammonia Treatment System	natural gas	0.05	0.002	1.0	1.0
F11Xe BSSW 1	F11Xe BSSW 1s	Bulk Specialty Solvent Waste Treatment System	natural gas	0.05	0.002	1.0	1.0

*For boilers, emission rates are for each stack.

**There are a total of 17 permitted RTOs allowed for installation at this facility. Emission rates are for each unit. Two of the permitted Munters units are to replace the two Durr units.

Note: TSP/PM10 limit for RTO includes emissions from fuel combustion and from conversion of HMDS to particulates.

Table 2
Plant Site Emission Limits (PSELs) for HAPs[1]

Pollutant	Twelve (12) Month Rolling Total PSEL (tpy)
Cresols	7.4
Hexachlorobenzene	0.5
Hexachlorobutadiene	3.9
Hexachlorocyclopentadiene	2.1
Phenol	1.5
Phosphine	7.9
Phosphorus	1.9
Phosgene	5.9
Arsenic Compounds	0.2
Cobalt Compounds	0.4
Chromium Compounds	0.2
Lead Compounds	0.2
Manganese Compounds	3.8
Mercury Compounds	0.5
Nickel Compounds	0.3
Selenium Compounds	3.8
Other Individual HAPs	9.0
All HAPs Combined	24.0

[1] PSELs for individual HAPs were determined by the following analysis. For those HAPs for which an Effects Screening Level (ESL) has been established by the Texas Natural Resource Conservation Commission, Intel performed an air quality analysis which assumed that the HAP would be emitted at the rate of nine (9) tons per year. Within the ESL list, HCL is the only chemical for which TNRCC deviates from the published ESL of 0.1 ug/m^3. TNRCC uses this value in humid areas; TNRCC uses 0.4 ug/m^3 in dry areas. The 0.4 ug/m^3 value was appropriate for Intel's analysis. Intel analyzed the resulting ambient air concentrations at the property line and the nearest sensitive receptor using an EPA approved air dispersion screening model. Intel then evaluated whether the relevant ESL would be exceeded under such circumstances. If application of the screening model analysis indicated a potential for exceeding the relevant ESL, Intel had the option to use a more refined, EPA-approved analysis to evaluate the accuracy of the screening model. If Intel declined to perform this additional analysis, or if such analysis confirmed the results of the screening model, a special emissions limit was established for such HAP so that model-predicted concentrations of the HAP in the ambient air would not exceed the ESL.

Table 3
Emission Factors for HAPs[1]

Pollutant	Chemical or Precursor	J[2]	I[2]	H[2]	G[2]
HF					
SF6 to HF	Sulfur Hexafluoride (SF6)	-	0.0016	-	0.0047
CF4 to HF	Carbon Tetrafluoride (CF4)	-	0.0036	-	0.0050
CHF3 to HF	Trifluoromethane (CHF3)	-	0.0181	-	0.0337
NF3 to HF	Nitrogen Trifluoride (NF3)	0.0340	0.0034	0.1032	0.0025
WF6 to HF	Tungsten Hexafluoride (WF6)	-	0.0005	-	0.0005
C4F8 to HF	Octafluorocyclobutane (C4F8)	-	0.0302	-	0.0259
CH2F2 to HF	Difluoromethane (CH2F2)	-	0.0353	-	0.0358
C5F8 to HF	Perfluorocyclopentene (C5F8)	-	0.0243	-	0.0343
BF3 to HF	Boron Trifluoride (BF3)	-	0.2535	-	0.2535
C4F6 to HF	Hexafluoro-1,3-butadiene (C4F6)	-	0.0091	-	0.0508
HCl					
Cl2 to HCl	Chlorine (Cl2)	-	0.0355	-	0.0835
DCE to HCl	Trans 1,2-Dichloroethene (DCE)	-	0.1004	-	0.1004
DCS to HCl	Dichlorosilane (DCS)	-	0.0001	-	0.0002
HCl	Hydrogen Chloride (HCl)	-	0.0706	-	0.0941
HCl (MA)	Hydrogen Chloride (HCl)		0.0017		0.0021
11AVD to HCl	11AVD	-	0.1021	-	0.1021
Cascade to HCl	Cascade	-	0.1021	-	0.1021
TiCl4 to HCl	Titanium Tetrachloride	-	0.1550	-	0.0024
Cl2					
Cl2	Chlorine (Cl2)	-	0.4384	-	0.2921
DCE to Cl2	Trans 1,2-Dichloroethene (DCE)	-	0.0940	-	0.0940
Others					
1,4 dioxane	1,4 Dioxane	-	0	-	0
Acetonitrile	Acetonitrile	1	1	1	1
AsH3	Arsine (AsH3)	-	0.0050	-	0.0050
Carbitol Cellusolve	Carbitol Cellusolve	-	0.0004	-	0.0004
Cl2 to CCl4	Chlorine (Cl2)	-	0.000014	-	0.0058
Dichloromethane	Dichloromethane	-	1	-	-
Ethylene Glycol	EG (from all other sources)	-	0.0004	-	-
Ethylene Glycol	EG (from Gensolve)	0.000011		0.000011	-
Formaldehyde	Formaldehyde	0.0099	0.0099	-	-
Methanol (bottles)	Methanol (bottles)	1	1	1	1
Methanol (470)	Methanol (470)	0.0726	-	0.0726	-
PH3	Phosphine (PH3)	-	0.0002	-	0.0050
TiCl4 to TiCl4	Titanium Tetrachloride	-	0.5000	-	
Bromoform[3]	Sodium Bromide	0.141			
LCP Oxide Etch - NH3[4]	LCP Oxide Etch	0.0008	-	0.0008	-
LCP Oxide Etch - NOx[4]	LCP Oxide Etch	0.0005	-	0.0005	-
Any Other HAP Listed In Appendix X[6]		1			

Notes:
[1] Emission factors take into account control efficiencies, where applicable. Chemicals having emission factors equal to zero (0.0) are either completely consumed in the process, are solid sources with negligible vapor pressures or have no detectable emissions during tool testing. Intel may revise the emission factors following Condition 1.G. EFs for processes no longer in use have been removed from this table.
[2] G, H, I and J are unique processes.
[3] Site EF, not associated with a single process.
[4] NH_3 is not a HAP but will be reported with TAP emissions.
[5] NO_x is not a HAP but will be reported with site NO_x emissions.
[6] This category does not include those HAPs chemicals for which Intel uses the sink evaporation equation specified in Condition 5.D.iv to calculate emissions.
"-"Chemical not used on this technology.

Appendix X - HAPs List

CAS#	Chemical Name		CAS#	Chemical Name
75058	Acetonitrile		91203	Naphthalene
79107	Acrylic acid		98953	Nitrobenzene
62533	Aniline		92933	4-Nitrobiphenyl
71432	Benzene (including benzene from gasoline)		100027	4-Nitrophenol
75252	Bromoform		684935	N-Nitroso-N-methylurea
106990	1,3-Butadiene		108952	Phenol
56235	Carbon tetrachloride		75445	Phosgene
7782505	Chlorine		7803512	Phosphine
67663	Chloroform		7723140	Phosphorus
1319773	Cresols/Cresylic acid (isomers and mixture)		85449	Phthalic anhydride
95487	o-Cresol		1120714	1,3-Propane sultone
108394	m-Cresol		78875	Propylene dichloride
106445	p-Cresol		75569	Propylene oxide
106467	1,4-Dichlorobenzene(p)		100425	Styrene
121697	N,N-Diethyl aniline (N,N-Dimethylaniline)		96093	Styrene oxide
60117	Dimethyl aminoazobenzene		79345	1,1,2,2-Tetrachloroethane
131113	Dimethyl phthalate		7550450	Titanium tetrachloride
75003	Ethyl chloride (Chloroethane)		108883	Toluene
107062	Ethylene dichloride (1,2-Dichloroethane)		120821	1,2,4-Trichlorobenzene
107211	Ethylene glycol		79005	1,1,2-Trichloroethane
75218	Ethylene oxide		79016	Trichloroethylene
75343	Ethylidene dichloride (1,1-Dichloroethane)		121448	Triethylamine
50000	Formaldehyde		540841	2,2,4-Trimethylpentane
118741	Hexachlorobenzene		108054	Vinyl acetate
87683	Hexachlorobutadiene		75354	Vinylidene chloride
77474	Hexachlorocyclopentadiene		1330207	Xylenes (isomers and mixture)
67721	Hexachloroethane		95476	o-Xylenes
110543	Hexane		108383	m-Xylenes
7647010	Hydrochloric acid		106423	p-Xylenes
7664393	Hydrogen fluoride (Hydrofluoric acid)			Antimony Compounds
108316	Maleic anhydride			Arsenic Compounds
67561	Methanol			Chromium Compounds
74839	Methyl bromide (Bromomethane)			Cobalt Compounds
74873	Methyl chloride (Chloromethane)			Cyanide Compounds
71556	Methyl chloroform (1,1,1-Trichloroethane)			Glycol ethers
78933	Methyl ethyl ketone (2-Butanone)			Lead Compounds
74884	Methyl iodide (Iodomethane)			Manganese Compounds
108101	Methyl isobutyl ketone (Hexone)			Mercury Compounds
80626	Methyl methacrylate			Nickel Compounds
1634044	Methyl tert butyl ether			Polycylic Organic Matter
75092	Methylene chloride (Dichloromethane)			Selenium Compounds

Table Y
Emission Factors for TSP/PM10

Pollutant	Emissions Factor
HMDS	0.745

Table Z
Emission Factors for VOCs[1]

Pollutant	J[2]	I[2]	H[2]	G[2]
1,4-Cyclohexanedimethanol vinyl ether	-	0.0300	-	-
1,4 dioxane	-	0	-	0
1-Heptanethiol	-	-	-	0.0004
2-Ethyl 1-Hexanol	-	1	-	0.0004
2-Heptanone	0.0166		0.0166	-
Acetic acid (from Photoresists)		0.0300	-	-
Acetic acid	0.000011	0.000011	0.000011	0.000011
Acetonitrile	1	1	1	1
Ammonia (NH3 gas) to CO[3]	0	0	0	0.0000071
Ammonia (NH3 gas) to NO[4]	0	0	-	0.0001
Bis(tertbutylamino)silane (BTBAS)	-	0	-	0
BTBAS to t-butylamine	-	0.0159	-	0.0159
CF4 to Hexafluoro-1,3-butadiene (C4F6)	-	0.0002	-	
CF4 to CO[3]	-	0.0262	-	0.0227
C4F8 to Hexafluoro-1,3-butadiene (C4F6)	-	0.0167	-	0.0038
C4F8 to CO[3]	-	0.3741	-	0.1229
Carbitol Cellosolve	-	0.0004	-	0.0004
CH2F2 to Hexafluoro-1,3-butadiene (C4F6)	-	0.0063	-	0.0104
CH2F2 to CO[3]	-	0.0960	-	0.1613
CHF3 to Hexafluoro-1,3-butadiene (C4F6)	-	0.0001	-	
CHF3 to CO[3]	-	0.0207	-	0.1063
Cl2 to Carbon Tetrachloride (CCl4)	-	0.000014	-	0.0058
Cyclohexanone	-	0.0041	-	0.0058
Cyclohexylamine	1	1	1	1
Diethylaminoethanol	1	1	1	1
Diisoamyl Ether	-	0.0167	-	-
Dimethyl amine (DMA)	-	1	-	-
Dimethyldimethoxysilane (DMDMOS)	-	0.0162	-	0.0153
Ethanol	-	0.0110	-	0.0146
Ethylene Glycol (from all other sources)	-	0.0004	-	-
Ethylene Glycol (from Gensolve)	0.000011	-	0.000011	-
Ethyl Lactate	0.0166	0.0111	0.0166	0.0061
Formaldehyde	0.0099	0.0099	-	-
Gamma-Butyrolactone	-	0.0120	-	0.0058
Hexafluoro-1,3-butadiene (C4F6)	-	0.0828	-	0.1226
Hexafluoro-1,3-butadiene (C4F6) to CO[3]	-	0.1661	-	0.2378
Hexamethyldisilazane (HMDS)	0.0300	0.0300	0.0300	0.0300
IPA – Bulk	0.0041	0.0057	0.0084	0.0050

Table Z (continued)
Emission Factors for VOCs[1]

Pollutant	J2	I2	H2	G2
IPA – Bottled	1	1	1	1
IPA – Slurry	-	1	-	-
IPA – SLAM	-	0.0127	-	0.0166
IPA - parts clean	0.0141	0.0141	0.0141	0.0141
Methanol (bottles)	1	1	1	1
Methanol (470)	0.0726	-	0.0726	-
Methyl Isobutyl Carbinol	-	0.0167	-	-
Morpholine	1	1	1	1
n-Butanol	-	0.0037	-	0.0049
Nitrogen Trifluoride (NF3) to CO[3]	-	0.0002	-	0.0001
Nitrogen Trifluoride (NF3) to NO[4]	-	0.0061	-	0.0203
Nitrogen Trifluoride (NF3) to NO2[4]	-	0.0029	-	0.0043
Nitrous Oxide (N2O) to NO[4]	-	0.0082	-	0.0092
1-Methyl-2-pyrrolidinone (NMP from 470)	0.000011	-	0.000011	-
N, N-Di-n-butylaniline	-	0.0300	-	
PDMAT to DMA	-	0.3081	-	0.3081
Perfluorocyclopentene (C5F8)	-	0.0877	-	0.1472
Perfluorocyclopentene (C5F8) to CO[3]	-	0.2605	-	0.3569
Propylene Glycol Monomethyl Ether (PGME)	0.0107	0.0107	0.0107	0.0058
Propylene Glycol Monomethyl Ether Acetate (PGMEA)	-	0.0075	-	0.0060
Propene (C3H6)	-	0.1883	-	-
Propene to Ethylene	-	0.0080	-	-
Propylene to IPA-N	-	0.0579	-	-
Sulfolane	0	0	0	0
TDMAT	-	0	-	0
Tetrakis(dimethylamino)titanium (TDMAT) to DMA	-	0.8043	-	0.8043
Tetramethylsilane	-	0.0062	-	0.0100
Trans 1,2-Dichloroethene (DCE)	0	0	0	0
Triflic Acid	-	0.0185	-	0.0300
Trimethyl Aluminum	-	-	-	1
Any Other VOC chemicals[5]	1	1	1	1
Process CO[3] (lb/ws)	0	0.000047	0	0.000033
Process NOx[4] (lb/ws)	0	0.0100	0	0.0076

Notes:

[1] Emission factors take into account control efficiencies, where applicable. Chemicals having emission factors equal to zero (0.0) are either completely consumed in the process, are solid sources with negligible vapor pressures or have no detectable emissions during tool testing. Intel may revise the emission factors following Condition 1.G. EFs for processes no longer in use have been removed from this table.

[2] G, H, I and J are unique processes.

[3] Carbon Monoxide is not a VOC but will be reported with site CO emissions.

[4] NO_x, NO and NO2 are not VOCs but will be reported with site NO_x emissions.

[5] This category does not include those VOC chemicals for which Intel will use the sink evaporation equation specified in Condition 4.D.iv.a to calculate emissions.

"-"Chemical not used on this technology.