

(d) EPA approved State
Source-specific requirements.

Permit Number: 26-3025
Expiration Date: 11/1/87
Page 1 of 5 Pages

AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality
522 Southwest Fifth, Portland, OR 97204
Mailing Address: Box 1760, Portland, OR 97207
Telephone: (503) 229-5696

Issued in accordance with the provisions of ORS 468.310

ISSUED TO:

Industrial Laundry & Dry
Cleaners, Inc.
dba Master Cleaners
4245 S.E. Milwaukie Ave.
Portland, OR 97202

INFORMATION RELIED UPON:

Application No. 2002
Date Received: 11/5/80

PLANT SITE:

4245 S.E. Milwaukie Ave.

ISSUED BY DEPARTMENT OF ENVIRONMENTAL QUALITY

William H. Young
WILLIAM H. YOUNG, Director

DEC 9 1980

Dated

Source(s) Permitted to Discharge Air Contaminants:

<u>Name of Air Contaminant Source</u>	<u>Standard Industry Code as Listed</u>
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Dry Cleaning Plant	
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Existing source not listed on Table A for which an air quality problem is identified by the Department (low cost).

Permitted Activities

Until such time as this permit expires or is modified or revoked, the permittee is herewith allowed to discharge exhaust gases containing air contaminants including emissions from those processes and activities directly related or associated thereto in accordance with the requirements, limitations and conditions of this permit from the air contaminant source(s) listed above.

The specific listing of requirements, limitations and conditions contained herein does not relieve the permittee from complying with all other rules and standards of the Department.

Performance Standards and Emission Limits

1. The permittee shall at all times maintain and operate all air contaminant generating processes and all contaminant control equipment at full efficiency and effectiveness, such that the emissions of air contaminants are kept at the lowest practicable levels.
2. The permittee shall not allow the emission of odorous matter as measured off the permittee's property in excess of:
 - a. A scentometer no. 0 odor strength or equivalent dilution in residential and commercial areas.
 - b. A scentometer no. 2 odor strength or equivalent dilution in all other land use areas.

A violation of Condition 2a or 2b shall have occurred when two measurements made by the Department within a period of one hour, separated by at least 15 minutes exceed the limits.

Special Condition

3. The Hoyt Dryer Reclaimer shall be in continuous use to capture at least 51.5 tons of cleaning fluid per year or 79% of the fluid used if less than 18,720 gallons (65.5 tons) are used per year.

Emission Reduction Plan

4. The permittee shall implement the following emission reduction plan when so notified by the Department:

Notice Condition

Action to be Taken

- | | |
|--------------------|---|
| a. Alert Level | Prepare to cease dry cleaning operations. |
| b. Warning Level | Cease dry cleaning operations so that no dry cleaning fluid or vapor is released to the atmosphere. |
| c. Emergency Level | <ol style="list-style-type: none">1. Continue Warning measures.2. Minimize emissions by reducing heat and steam demands to absolute necessities consistent with preventing equipment damage. |

5. The permittee shall demonstrate that the Hoyt Petro Miser is capable of operating in continuous compliance with Condition 3 by performing a test for emissions from the unit by June 1, 1981. All test data and results shall be submitted to the Department for review by no later than July 1, 1981. Compliance shall have been demonstrated

upon written approval, by the Department, of the test data and results. All tests shall be conducted in accordance with the testing procedures on file (Test Method 34, Material Balance) at the Department or in conformance with applicable standard methods approved in advance by the Department.

Monitoring and Reporting

6. The permittee shall effectively inspect and monitor the operation and maintenance of the plant and associated air contaminant control facilities. A record of all such data shall be maintained for a period of one year and be available at the plant site at all times for inspection by the authorized representatives of the Department. At least the following parameters shall be monitored and recorded at the indicated interval.

<u>Parameter</u>	<u>Minimum Monitoring Frequency</u>
a. The amount of cleaning fluid purchased.	Annually
b. The amount of cleaning fluid used.	Annually
c. The amount of spent solvent reclaimed and shipped to reclaimers.	Annually
d. Calculated amount of solvent emitted to the atmosphere.	Annually
e. A description of any maintenance to the air contaminant control system.	As Performed

7. The permittee shall report to the Department by January 15 of each year this permit is in effect the following information for the preceding calendar year:
- a. Plant loss of cleaning fluid, substantiated by amounts listed above as 6.a. through 6.d.
 - b. Quantities and types of fuels used.

Fee Schedule

8. The Annual Compliance Determination Fee for this permit is due on October 1 of each year this permit is in effect. An invoice indicating the amount, as determined by Department regulations, will be mailed prior to the above date.

General Conditions and Disclaimers

- G1. The permittee shall allow Department of Environmental Quality representatives access to the plant site and pertinent records at all reasonable times for the purposes of making inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emission discharge records and otherwise conducting all necessary functions related to this permit.
- G2. The permittee is prohibited from conducting open burning except as may be allowed by OAR Chapter 340, Sections 23-025 through 23-050.
- G3. The permittee shall;
- a. Notify the Department in writing using a Departmental "Notice of Construction" form, and
 - b. Obtain written approval.
- before:
- a. Constructing or installing any new source of air contaminant emissions, including air pollution control equipment, or
 - b. Modifying or altering an existing source that may significantly affect the emission of air contaminants.
- G4. The permittee shall notify the Department at least 24 hours in advance of any planned shutdown of air pollution control equipment for scheduled maintenance that may cause a violation of applicable standards.
- G5. The permittee shall notify the Department by telephone or in person within one (1) hour of any malfunction of air pollution control equipment or other upset condition that may cause a violation of the applicable standards. Such notice shall include the nature and quantity of the increased emissions that have occurred and the expected duration of the breakdown.
- G6. The permittee shall at all times conduct dust suppression measures to meet the requirements set forth in "Fugitive Emissions" and "Nuisance Conditions" in OAR Chapter 340, Sections 21-050 through 21-060.
- G7. Application for a modification of this permit must be submitted not less than 60 days prior to the source modification. A Filing Fee and an Application Processing Fee must be submitted with an application for the permit modification.
- G8. Application for renewal of this permit must be submitted not less than 60 days prior to the permit expiration date. A Filing Fee and an Annual Compliance Determination Fee must be submitted with the application for the permit renewal.
- G9. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

- G10. This permit is subject to revocation for cause as provided by law.
- G11. Notice provision: Section 113(d)(1)(E) of the Federal Clean Air Act, as amended in 1977, requires that a major stationary source, as defined in that act, be notified herein that "it will be required to pay a noncompliance penalty under Section 120 (of that act) or by such later date as is set forth in the order (i.e., in this permit) in accordance with Section 120 in the event that such source fails to achieve final compliance by July 1, 1979."

P26302.5

Permit Number: 26-3025
Application No.: 2002
Date: November 6, 1980

Department of Environmental Quality
Air Quality Control Division

AIR CONTAMINANT DISCHARGE PERMIT APPLICATION REVIEW REPORT

Industrial Laundry & Dry Cleaners, Inc.
4245 Southeast Milwaukie Avenue
Portland, OR 97202

Background

1. Industrial Laundry and Dry Cleaners, Inc., dba Master Cleaners, operates a dry cleaning business located at 4245 Southeast Milwaukie Avenue in Portland.
2. The annual production capacity is approximately 520,000 pounds of clothes cleaned.
3. The plant's five dryers consumed 18,720 gallons of Stoddard solvent in 1979.
4. The emission control system will be a Hoyt Petro Miser solvent vapor recovery unit.
5. The estimated annual rate of air contaminant emissions is 65.5 tons per year now, 14 tons per year after the Hoyt unit is installed.
6. The plant is operated 8 hours per day, 5 days per week, and 52 weeks per year.
7. Natural gas is burned in the boiler. Estimated annual fuel consumption consists of 70,000 therms natural gas.

Evaluation

8. The emissions from the plant have been determined to be in compliance with Department of Environmental Quality emission limitations.
9. The plant received Departmental approval April 25, 1980, to install the Hoyt unit. It is estimated that a reduction of 51.5 tons per year of Volatile Organic Compounds will occur. Publishers Paper Company is in the process of buying that reduction, to use as an offset (partial) for their new, hogged-fuel, 300,000 lb/hr boiler at their Newberg mill. See Publishers' Air Contaminant Discharge Permit 36-6041.

Recommendation

10. It is recommended that the proposed Permit be approved for issuance to Industrial Laundry and Dry Cleaners, Inc.

P. Bosserman, Nov. 6, 1980
P26302.5R (wn)

1 BEFORE THE ENVIRONMENTAL QUALITY COMMISSION
2 OF THE STATE OF OREGON

3
4 In the matter of the Transfer by)
5 VANPLY, INC. of a VOC Offset to)
6 to Spalding Pulp & Paper Co.)
)
)

STIPULATION AND CONSENT
FINAL ORDER

7 WHEREAS:

8
9 1. The purpose of this Stipulation and Consent Final Order is to
10 make permanent and federally and state enforceable a certain reduction
11 of emissions of volatile organic compounds ("VOC") by Vanply, Inc.
12 ("Vanply") which is intended to partially offset and thereby partially
13 allow a certain VOC emission increase proposed by Spaulding Pulp & Paper
14 Co. ("Spaulding"), in accordance with applicable federal and state laws.

15 2. On January 3, 1980, the Oregon Department of Environmental Quality
16 ("Department") issued to Spaulding air contaminant discharge Permit No.
17 36-6041 pursuant to permit application No. 1557 filed with the Department
18 on March 29, 1979. Permit No. 36-6041 authorizes Spaulding to discharge
19 air contaminants from its new wood fired No. 10 boiler at Publishers Paper
20 Mill, Newberg, Oregon, in accordance with the conditions contained in the
21 permit. The permit is scheduled to expire on October 1, 1984.

22 3. Special condition No. 9 of Spaulding's permit requires Spaulding
23 to secure and have in effect emission reductions ("offset") in the amount
24 of 569 tons per year of VOC prior to operation of boiler No. 10.

25 4. The offsets referred to in paragraph 3 above were and are
26 required by the provisions of the Clean Air Act, as amended, the United

1 States Environmental Protection Agency's ("EPA") implementing rules,
2 regulations and rulings, and Oregon Administrative Rules 340-20-192(1),
3 as a prerequisite to Spaulding operating its No. 10 boiler, a "new major
4 source" under those laws. The emissions reductions were and are required
5 to be permanent and federally and state enforceable by the above cited
6 laws.

7 5. Prior to September 10, 1979 (date of sale to
8 Vanply), D. G. Shelter Products, a Delaware (state of
9 incorporation] corporation, owned and operated a flat wood coating facility
10 at Beaverton, Oregon. D.G. Shelter Products operated its Beaverton
11 facility and emitted 97 tons per year of VOC therefrom pursuant to air
12 contaminant discharge permit No. 34-2632 issued by the Department to D. G.
13 Shelter Products.

14 6. Effective September 10, 1979, D. G. Shelter
15 Products sold its Beaverton facility to Vanply, Inc. ("Vanply"),
16 a Washington (state of incorporation] corporation, which completely
17 shut down the facility and terminated all VOC emissions therefrom.

18 7. On September 29, 1980, Spaulding and Vanply agreed to relinquish,
19 transfer and assign to Spaulding any and all right, title and interest
20 and claim Vanply may have with respect to the 97 tons per year reduction
21 of VOC emissions resulting from the closure by Vanply at its above
22 described Beaverton facility in order to allow Spaulding to partially
23 satisfy the offset requirement described above in paragraphs 3 and 4.
24 Vanply also agreed therein to execute any other instruments, such as this,
25 required by the Department to accomplish the purposes of the agreement.

26 8. Vanply understands that in order for its offset transfer described

1 in paragraph 7 above to be effective to authorize Spaulding to operate
2 its No. 10 boiler, as was the purpose of Vanply's agreement with Spaulding,
3 Vanply has to commit itself, its successors and assigns to making the
4 emission reductions permanent and federally and state enforceable and that
5 that is the purpose of this Stipulation and Consent Final Order. Vanply
6 understands further that because its offset commitment contained herein
7 will be permanent and federally and state enforceable that it therefore
8 would prevent Vanply, its sucesors and assignees from starting up or
9 expanding after September 28, 1979 [date of shutdown], the same or
10 a similar operation with associated VOC emissions at the Beaverton site,
11 or any other site in Air Quality Control Region 193 without Vanply, its
12 successors or assigns, obtaining its own offsets not related to this
13 offset. Furthermore, as a consequence thereof, if Vanply, its sucesors
14 or assigns, ever makes application with the Department for an air
15 contaminant discharge permit or preconstruction authorization to so start
16 up or expand, the Department and the Oregon Environmental Quality
17 Commission ("Commission") would be required to deny the application until
18 the applicant obtains its own offsets unrelated to this offset. Vanply
19 confirms that neither it, its successors nor assigns has so started up
20 or expanded any such operation.

21 9. Vanply understands that this is one of the first offsets that
22 the Department and the Commission have had to deal with and that therefore
23 the criteria and limitations of offsets have not yet been fully defined
24 by rules. Vanply also understands that this offset will be regulated by
25 and will be subject to the limitations contained in future rules, when
26 they are adopted and that the final order contained herein will then be

1 subject to amendment by the Commission to expressly incorporate, interpret
2 and apply those rules. Furthermore, Vanply understands that it may have
3 to execute an additional document or documents in order to achieve the
4 purposes of the agreement and the laws.

5 10. Vanply understands that this stipulation and Consent Final Order
6 is subject to review and approval or disapproval by the Commission and
7 EPA. If disapproved by either, Vanply understands that the final order
8 contained herein will be subject to amendment by the Commission in order
9 to gain approval hereof.

10 11. Vanply recognizes that the commission has the power to issue
11 federally and state enforceable final enforcement orders and orders
12 pertaining to applications for preconstruction authorizations and air
13 contaminant discharge permits. Therefore, Vanply wishes to implement its
14 offset transfer agreement by consenting, pursuant to ORS 193.415(5), to
15 the entry by the Commission of a final order or orders imposing certain
16 limitations and waiving rights to notices, hearings and judicial review
17 thereof.

18 NOW THEREFORE, based on the above, Vanply, on behalf of itself, its
19 successors and assigns, consents and agrees to the following:

20 A. The Commission shall enter the following final order:

21 (1) The 97 tons per year of VOC emissions from Vanply's
22 Beaverton facility (formally owned by D. G. Shelter Products) is hereby
23 removed from the emissions inventory and the removal shall be submitted
24 to EPA for approval as a revision to Oregon's Clean Air Act State
25 Implementation Plan ("SIP").

26 (2) Vanply, its successors and assigns are hereby prohibited

1 from, on and after September 28, 1979, (date Vanply
2 shut down) starting up or expanding the same or any similar operation as
3 described in paragraph 5 above, at the Beaverton site or any other site
4 in Air Quality Control Region 193 without Vanply, its successors or
5 assigns, first obtaining its own offsets not related to this offset.

6 (3) The Commission hereby retains jurisdiction to issue such
7 supplemental or amended interlocutory or final orders as the Commission
8 deems appropriate under the circumstances, including:

9 (a) Such as are necessary to obtain the approval hereof
10 by EPA;

11 (b) Such as necessary to incorporate and apply any future
12 Commission rules that may be adopted regarding offsets.

13 B. Whenever any person makes any application for an air contaminant
14 discharge permit or for preconstruction approval of any activity which
15 would violate subparagraph (2) of paragraph A above, the Department and
16 Commission shall issue final orders denying the application.

17 C. Whenever requested by the Department or Commission, Vanply its
18 successors and assigns shall execute any document necessary to achieve
19 the purposes of the above-described laws and offset transfer agreement.

20 D. This Stipulation and Consent Final Order may be submitted to EPA
21 for approval as a revision to the SIP for the purpose of making it
22 federally enforceable.

23

24

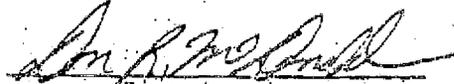
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26

1
2 IT IS SO STIPULATED AND AGREED:

3
4 VANPLY, INC.

5
6 Date: December 23, 1980

By: 

(Signature)

7
8 Name: Don R. McDonald

(Please print or type)

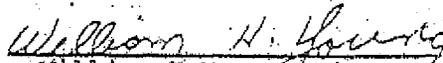
9
10 Title: Vice President-Operations

(Please print or type)

11
12
13
14 IT IS SO ORDERED AND APPROVED:

15 ENVIRONMENTAL QUALITY COMMISSION

16
17 Date: Dec 30, 1980



William H. Young, Director

18 Department of Environmental Quality
19 pursuant to OAR 340-11-36(1)

AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality
522 Southwest Fifth Avenue, Portland, OR 97204
Mailing Address: Box 1760, Portland, OR 97207
Telephone: (503) 229-5696

Issued in accordance with the provisions of ORS 468.310

ISSUED TO:

Weyerhaeuser Company
P O Box 325
Bly, OR 97622

PLANT SITE:

Highway 140
Bly, Oregon

ISSUED BY DEPARTMENT OF ENVIRONMENTAL QUALITY

FEB 3 1981

William H. Young
WILLIAM H. YOUNG, Director

Dated

Source(s) Permitted to Discharge Air Contaminants:

<u>Name of Air Contaminant Source</u>	<u>Standard Industry Code as Listed</u>
Sawmill and Planing Mill - greater than 25,000 board feet per shift.	2421
Fuel Burning Equipment - outside AQMA greater than 30 million BTU/hr.	4961

Permitted Activities

Until such time as this permit expires or is modified or revoked, the permittee is herewith allowed to discharge exhaust gases containing air contaminants including emissions from those processes and activities directly related or associated thereto in accordance with the requirements, limitations and conditions of this permit from the air contaminant source(s) listed above.

The specific listing of requirements, limitations and conditions contained herein does not relieve the permittee from complying with all other rules and standards of the Department.

Performance Standards and Emission Limits

1. The permittee shall at all times maintain and operate all air contaminant generating processes and all contaminant control equipment at full efficiency and effectiveness, such that the emission of air contaminants are kept at the lowest practicable levels.
2. Particulate emissions from any single air contaminant source except the Sterling boiler shall not exceed any of the following:
 - a. 0.2 grains per standard cubic foot for sources existing prior to June 1, 1970;
 - b. 0.1 grains per standard cubic foot for sources installed, constructed, or modified after June 1, 1970; and
 - c. An opacity equal to or greater than twenty percent (20%) for a period aggregating more than three (3) minutes in any one (1) hour.
3. The permittee shall operate and control the steam generating boiler(s) in accordance with the following list of boiler operating parameters and emission limitations:

Boiler Identification	Fuel Used	Maximum Emission Limits	
		Opacity (1)	Maximum Capacity (2)
Sterling	hogged fuel	20	40,000

- (1) Maximum opacity that shall not be equalled or exceeded for a period or periods aggregating more than three minutes in any one hour, excluding uncombined water vapor.
- (2) Maximum hourly average steam production (pounds per hour)

4. The permittee shall not operate the boiler with other fuels or at greater steam generating rates than those established during the Department approved particulate emissions source test.
5. Particulate emissions from the Sterling boiler shall not exceed 78 metric tons per year (86 short tons per year).
6. Particulate emissions from the Sterling boiler shall not exceed 0.13 grains per standard cubic foot corrected to 12 percent carbon dioxide.

Monitoring and Reporting

7. The permittee shall report to the Department of Environmental Quality by January 15 of each year this permit is in effect at least the following information for the preceding calendar year:
 - a. Total sawmill operating time (hours/year)
 - b. Sawmill production (board feet/year)
 - c. Type and amount (tons/year) of wood waste burned in each boiler
 - d. Total boiler operating time (hours/year)

Fee Schedule

8. The Annual Compliance Determination Fee for this permit is due April 1st of each year this permit is in effect. An invoice indicating the amount, as determined by Department regulations, will be mailed prior to the above date.

General Conditions and Disclaimers

- G1. The permittee shall allow Department of Environmental Quality representatives access to the plant site and pertinent records at all reasonable times for the purposes of making inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emission discharge records and otherwise conducting all necessary functions related to this permit.
- G2. The permittee is prohibited from conducting open burning except as may be allowed by OAR Chapter 340, Sections 23-025 through 23-050.

The permittee shall:

- a. Notify the Department in writing using a Departmental "Notice of Construction" form, and

- b. Obtain written approval.

before:

- a. Constructing or installing any new source of air contaminant emissions, including air pollution control equipment, or

- b. Modifying or altering an existing source that may significantly affect the emission of air contaminants.

The permittee shall notify the Department at least 24 hours in advance of any planned shutdown of air pollution control equipment for scheduled maintenance that may cause a violation of applicable standards.

The permittee shall notify the Department by telephone or in person within one (1) hour of any malfunction of air pollution control equipment or other upset condition that may cause a violation of the applicable standards. Such notice shall include the nature and quantity of the increased emissions that have occurred and the expected duration of the breakdown.

The permittee shall at all times conduct dust suppression measures to meet the requirements set forth in "Fugitive Emissions" and "Nuisance Conditions" in OAR Chapter 340, Sections 21-050 through 21-060.

Application for a modification of this permit must be submitted not less than 60 days prior to the source modification. A Filing Fee and an Application Processing Fee must be submitted with an application for the permit modification.

- G8. Application for renewal of this permit must be submitted not less than 60 days prior to the permit expiration date. A Filing Fee and an Annual Compliance Determination Fee must be submitted with the application for the permit renewal.
- G9. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
- G10. This permit is subject to revocation for cause as provided by law.
- G11. Notice provision: Section 113(d)(1)(E) of the Federal Clean Air Act, as amended in 1977, requires that a major stationary source, as defined in that act, be notified herein that "it will be required to pay a noncompliance penalty under Section 120 (of that act) or by such later date as is set forth in the order (i.e., in this permit) in accordance with Section 120 in the event that such source fails to achieve final compliance by July 1, 1979."

Permit Number: 36-6041
Expiration Date: 10/1/84
Page 1 of 1 Pages

AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality
522 SW Fifth, Portland, OR 97204
Mailing Address: Box 1760, Portland, OR 97207
Telephone: (503) 229-5696

Issued in accordance with the provisions of ORS 468.310

ISSUED TO:

Spaulding Pulp and Paper Co.
Box 70
Newberg, OR 97132

REFERENCE INFORMATION:

Application No. N/A
Date Received: June 27, 1980

PLANT SITE:

Publishers Paper Mill
Wynooki Street
Newberg, Oregon

ISSUED BY DEPARTMENT OF ENVIRONMENTAL QUALITY

William H. Young
WILLIAM H. YOUNG, Director

DEC 11 1980

Dated

ADDENDUM NO. 1

In accordance with OAR Chapter 340, Section 14-040, Air Contaminant Discharge Permit No. 36-6041, Conditions 4 and 9 now read as follows:

4. Annual emissions from the boiler shall not exceed 240 tons of particulate and 189 tons of Volatile Organic Compounds (VOC).
9. The permittee shall secure and have in effect emission reductions (offsets) in the amount of 189 tons/year or more to offset boiler Volatile Organic Compound emissions prior to operation of the boiler. These offsets may be obtained from any source within the broad vicinity of Newberg but not outside of Air Quality Control Region 193. Emission offsets shall be consistent with definitions and guidelines in the Emission Offset Interpretative Ruling, FR Vol. 44 No. 11, Jan 16, 1979.

Conditions 16 and 17 are hereby added as follows:

16. The No. 9 wood waste boiler at the Newberg Mill (Bumstead-Woolford) shall be operated within the following constraints to ensure an annual VOC offset of 12 tons to be applied to the adjacent No. 10 boiler:
 - a. The total non-fossil fuel quantity burned in the No. 9 boiler shall not exceed 15.3 million therms per year (equivalent to approximately 95,000 ODT of fuel per year).
 - b. Maximum superheated steam production (hourly average) shall not exceed the following:
 - 1) 145,000 pph during simultaneous operation of No. 9 and No. 10 boilers unless at least 15 therms/hr of fossil fuel is fired per 1000 pph steam above 145,000 pph up to a maximum of 160,000 pph.
 - 2) 160,000 pph during periods when No. 10 boiler is not operating.
 - c. Records of operating conditions sufficient to document compliance with these constraints shall be kept on file.
17. The Publishers Paper Portland Division facility located at 6637 SE 160th Avenue, Portland, shall be permanently shut down. In the event the Publishers Paper Company or any other operator wishes to restart this facility, total offsets for volatile organic compounds must be secured and placed into effect before such startup.

P36604.1A (a)

AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue, Suite 400
Portland, OR 97201-4987
Telephone: (503) 229-5263

Issued in accordance with the provisions of ORS 468A.040 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

Dura Industries, Inc.
P.O. Box 10762
Portland, OR 97210

INFORMATION RELIED UPON:

Application No.: 015085
Date Received: 07-20-95

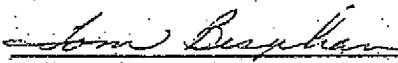
PLANT SITE LOCATION:

4466 NW Yeon
Portland, OR 97210

LAND USE COMPATIBILITY STATEMENT:

From: City of Portland
Dated: November 14, 1988

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY


Thomas Bispham, Northwest Region Administrator

SEP 14 1995

Dated

ADDENDUM NO. 1.

In accordance with OAR 340-14-040, Air Contaminant Discharge Permit No. 26-3112, Condition(s) 15 through 21 are added as follows. All other permit conditions remain as issued on March 14, 1994.

SYNTHETIC MINOR CONDITIONS

15. The amount of Volatile Organic Compound (VOC) used in a year shall not exceed 33.3 tons.
16. The amount of each individual Hazardous Air Pollutant (HAP) used in a year shall not exceed 9.9 tons.
17. The amount of all HAP used in a year shall not exceed 24.9 tons.

Department of Environmental Quality
 Air Quality Division

AIR CONTAMINANT DISCHARGE PERMIT APPLICATION REVIEW REPORT

Dura Industries, Inc.
 P.O. Box 10762
 Portland, OR 97210

PSEL CRED	SOURCE TEST	CMS	AMB MON	COMPL SCHED	SPEC COND	REPORT			EXCESS R N	NSPS	NSR	PSD	NESHAPS	SIZE		PUBL NOTC
						A	Q	M						A1	A2	
				X	X	X			X						X	X

This permit review is conducted in two parts. First (I), the facility and its emissions sources are evaluated. The key emission points are identified and the appropriate regulatory standards are determined. The second part (II) consists of the alternate RACT determination.

I. THE FACILITY REVIEW

GENERAL BACKGROUND INFORMATION

1. Dura Industries, Inc. operates a surface coating facility located at 4466 NW Yeon, Portland, Oregon, 97210. Dura paints aluminum extrusion parts used in the construction of commercial buildings, and the coatings applied to these extrusion parts are subject to the high performance architectural coatings (HPAC) standard (OAR 340-22-170 (5) (j) (E)) of 3.5 lbs VOC per gallon of coating, less water. The coatings applied to other miscellaneous parts are subject to OAR 340-22-170 (5) (j) (A) through (D).
2. The source is located in a nonattainment area for ozone, and is a minor source (< 40 tons/yr) of ozone precursor Volatile Organic Compounds (VOC). All other criteria pollutants are emitted from this source in insignificant amounts.
3. A Land Use Compatibility Statement signed by City of Portland on 11/14/88 granted unconditional approval.
4. Other permits issued or required by the Department of Environmental Quality for this source include a registration as a hazardous waste generator.

(Pages 2+3 completely
crossed out.)

Crossed out portions not to be included

OTHER CONDITIONS

13. The source is required to submit reports to the Department annually as specified in the permit.
14. The source is not subject to immediate (within one hour) reporting of excess emissions, except when the emissions may endanger public health.
15. This source is not subject to federal regulations for New Source Performance Standards (NSPS), Prevention of Significant Deterioration (PSD), National Emissions Standards for Hazardous Air Pollutants (NESHAPS), or New Source Review (NSR).

II. THE ALTERNATE RACT DETERMINATION

Pursuant to a source-specific State Implementation Plan (SIP) revision criteria cited in OAR 340-22-170 (3), this permit proposes to exempt Dura Industries Inc. from meeting the high performance architectural coatings (HPAC) standard (OAR 340-22-170 (5) (j) (E)) of 3.5 lbs VOC per gallon of coating, less water, and in its place establishes the alternative emission limit. The exception to the Reasonably Available Control Technology (RACT) standard is proposed in this permit mainly because (1) high performance architectural coatings are not currently available and (2) the cost of control is considered to be excessive for this source.

The proposed alternative RACT limit need not be adopted by the Oregon Environmental Quality Commission (EQC) prior to EPA approval as the provision is a part of the RACT coating rule. The alternative RACT limit in this permit is submitted directly to EPA, and it will not become effective until approved by EPA. The permit issuance will follow the procedural requirements of 40 CFR Part 51.102, which covers the public hearing processes.

BACKGROUND INFORMATION

16. OREGON - RACT SURFACE COATING STANDARDS: The surface coating RACT standards (OAR 340-22-170) in Oregon are currently divided into 20 categories to cover a wide range of industrial coating applications; from (a) automobile to (z) zinc coating operations, except the aerospace coating applications. The primary intent behind the surface coating rules is to reduce the pollutants from the front-end by restricting the solvent (VOC) contents in coatings. The concept has worked for the most part, but in certain coating categories such as the architectural coatings, the compliant coating remains unavailable.
17. THE ARCHITECTURAL COATING UNIQUENESS: Dura Industries, Inc. coats exterior aluminum panels and extrusion parts for (highrise) commercial buildings. The paint finish must meet the America Architectural Manufacturing Association (AAMA) specification 605.2; which requires

(with a warranty) the long-lasting life expectancy of 25 plus years, high durability and color retention, and resistance to atmospheric pollutants - particularly "acid rain" and alkaline deposits. The only architectural coating which meets the rigid AAMA standard contains 6.2 lbs VOC per gallon of coating, less water.

Atochem North America, Inc., a division of the French Company, Elf Aquitaine, is the manufacturer of the resin binder trademarked "KYNAR 500", which is sold only to several licensed paint manufacturers including DeSoto Inc., The Glidden Company, PPG Industries Inc., and the Valspar Corp. KYNAR 500 is compositionally polyvinylidene fluoride, which is the key ingredient of the resin binder uniquely suited for AAMA 605.2 specifications. KYNAR 500 is highly resistant to UV light, is a strong water repellent, and provides the best available protection against the most general forms of environmental stress, and the other characteristics ideal for commercial application.

The availability of reformulation is primarily dictated by the physical law of solubility. The coating solid will not dissolve beyond its saturation point at given temperature and pressure. The coating solid is the coating component that dictates the coating (protective) characteristics, and solvent (VOC) is a mere transporting medium. As discussed, the amount of solvent needed to dissolve coating solids and formulate a gallon of coating is dictated by the physical law of solubility. The responses from the referenced paint manufacturers were essentially univocal: The development work to formulate a water reducible coating, which began as early as in 1960, continues unsuccessfully due to the unresolvable application problems. KYNAR 500 is soluble only in a few selected solvents and at relatively low concentration, and that successful formulation meeting the AAMA 605.2 spec must contain at least 6.2 lbs VOC per gallon of coating, less water.

It is also worth noting, for example, the common exterior paints with the average 3.5 lbs/gal VOC content generally have the normal life expectancy of less than 10 years. In comparison, the AAMA spec paints would certainly benefit the environment over the life (> 25 yr) of the AAMA spec finish. Also note that the "surface coating in manufacturing" rules are not applicable to the painting activities at the construction site and/or for the repair/maintenance works.

18. A selective survey was conducted on facilities in various ozone non-attainment areas which use AAMA 605.2 spec HPAC coatings, and their limits are listed below:

<u>Company/Location</u>	<u>Non-Attainment Status</u>	<u>PSEL tons/yr</u>	<u>HPAC limit lbs/gal</u>
PEFCO, Inc./ St. Paul, MN	Moderate	None	none

Aluminum Finishing Corp./Indianapolis	Moderate	25	None
Southern Aluminum Finishing Co./Atlanta GA	Serious	35	6.2
International Extr., Inc./LA CA	Extreme	None	3.2*

* afterburner Control required by Nov '93

The ozone non-attainment status is currently divided into 4 classes:

Extreme --> Serious --> Moderate --> Marginal

19. THE PORTLAND ATTAINMENT STATUS: The Portland area is currently designated as a marginal nonattainment area for ozone. However, one of the criteria for reaching the attainment status is to not exceed the national ambient air quality standard for ozone (0.125 ppm) more than once per year on average over a three year period. For past three years, Portland has been in compliance with the EPA standard:

Year (Date)	# Exceedances	Conc. (ppm)
1991 (7/02)	1	0.129
1992 (8/17)	1	0.126
1993	0	-

Department will also meet the EPA deadline (November '93) for the submittal of a plan to maintain compliance with the standard.

As indicated earlier, Dura's proposed PSEL is 33.3 tons/yr. According to Dura's emission data, the projected architectural coating usage is less than 10 tons/yr, and the rest is for non-architectural coatings and cleanup solvent usage.

There is only one other similar architectural coating facility (Anodizing Inc.) in Portland, but they are subject to meet the New Source Review (NSR) requirements and their VOC emissions would be controlled. The side benefit that will result from the NSR control requirements is that the coating line emission would also meet the RACT standard of 3.5 lbs/gal.

The Department's emission inventory (1990) indicates the industrial emissions account for about 6 percent of total Portland area VOC emissions. The excess emission due to the proposed alternative RACT limit (6.2 lbs/gal) is minuscule, and the impact on the ambient air quality (or Portland ozone maintenance plan) caused by proposed alternate RACT limit (source specific - only applies to Dura Inc.) would be insignificant:

<u>Source Type</u>	<u>VOC Emissions - 1990 Ozone Season</u>	
	<u>lbs/day</u>	<u>Percent (%)</u>
Stationary Point Sources	35,913	6%
Stationary Area Sources	158,311	26%
Biogenic Sources	91,462	15%
Non-Road Mobile Sources	87,079	14%
On-Road Mobile Sources	<u>239,338</u>	39%
Total within Portland AQMA	612,103	

THE FEASIBILITY OF ADD-ON CONTROL

20. RACT compliance can be achieved by using compliant coatings and/or by adding pollution control devices. Due to the lack of reformulation, the feasibility of add-on abatement devices was explored to comply with the RACT standard, OAR 340-22-170 (5)(j)(E).

In choosing the pollution control devices, the initial capital investment cost was the major concern for Dura Inc. for several reasons. First of all, Dura is a small business with small capital. In addition, the possibility of utilizing a powder coating technology exists in near future. There are also uncertainties present in the future market share due to strong foreign competitions (with no VOC regulations). All things considered, the initial capital investment cost, and not the annual operating cost, is the primary factor influencing the selection of a specific type of control equipment.

Of existing abatement devices, a thermal incinerator system without the energy recovery is determined to be the most appropriate (a least initial capital cost) technology for this source. The other key parameters which influenced the cost analysis include the business decision to provide the incinerator control to only one spray booth - where all the AAMA spec coatings would be applied. Refer to attachments A1 through A5 for a complete cost analysis.

In summary, the annual cost of VOC control to meet the 3.5 lbs/gal RACT limit is determined to be \$50,600. Based on the 10 tons/yr VOC emissions from the AAMA spec coating applications, the actual emission would be less, the cost per ton of VOC control is greater than \$5,000/ton. The Department acknowledges the (greater than) \$5,000/ton/yr control cost to be excessive for RACT, especially when the future market is uncertain, and therefore the thermal incineration control is not required as RACT.

THE ALTERNATIVE RACT LIMIT

21. Availability of Low-Solvent Coatings (compliant architectural coatings) has been discussed, and the feasibility of abatement devices has been explored. This permit determined the proposed alternative RACT limit for

architectural coatings that are subject to the AAMA 605.2 spec is 6.2 lbs VOC per gallon of coating, less water. The EPA compliance guideline dictates the alternative RACT limit be expressed on a solid basis, because when coatings are reformulated to a higher solids content, a smaller volume of coating material is required to apply the same amount of solids.

The 6.2 lbs VOC/gal coating, less water, means there is 5.2 pounds of VOC in one gallon of coating. Divide by the average solvent density of 7.36 lbs/gal, as cited at OAR 340-22-170 (6), the 6.2 pounds of VOC in one gallon of paint would occupy $(6.2/7.36 =)$ 0.8424 gallon space. The rest (0.1576 gallon) of the gallon would consist of coating solids in this case. Therefore, the amount of VOC emitted per gallon of coating solids, less water, is:

$$\frac{6.2 \text{ lbs}}{0.1576 \text{ gal}} = \frac{39.3 \text{ lbs VOC}}{\text{gal coating solids}}$$

ADDITIONAL REQUIREMENTS

22. Special conditions in the form of compliance schedule contained in the permit include:
- The surface coating - RACT limits; and
 - Requirement to advertise in the paint journal/magazine and continue to demonstrate that complying low-solvent coatings are unavailable.
23. Compliance schedule contained in the permit is conditional, and it may or may not be triggered pending EPA approval/disapproval of the alternate RACT limit as determined in the proposed permit. If EPA approves of the alternate RACT limit, the compliance schedule does not apply, but if EPA disapproves, the proposed alternate RACT limit will be systematically revoked as outlined in the compliance schedule.

PUBLIC NOTICE

24. The proposed Plant Site Emission Limit is same as the previous permit. A public hearing was held on December 20, 1993 for the alternative RACT limit proposed in this permit.

GDY

January 5, 1994

PERMITS/P263112R

AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality
811 S.W. Sixth Avenue
Portland, OR 97204-1390
Telephone: (503) 229-5696

Issued in accordance with the provisions of ORS 468A.040 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

Port of Portland
P.O. Box 3529
Portland, Oregon 97208

INFORMATION RELIED UPON:

Department Initiated
RACT Determination

PLANT SITE LOCATION:

Ship Repair Yard
5555 North Channel
Portland, Oregon 97217

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY

Tom Bispham

Tom Bispham, Northwest Region Administrator

OCT 04 1995

Dated

ADDENDUM NO. 2

In accordance with OAR 340-14-040, Air Contaminant Discharge Permit No. 26-3224, Conditions 17e shall be amended, and the following Conditions 19 and 20 shall replace Conditions 19, 20 and 21 of Addendum No. 1, issued May 4, 1995, in accordance with OAR 340-22-104, and read as follows:

REPORTING REQUIREMENTS

- 17 e. Weekly average volatile organic compound (VOC) content of coatings used in the ship painting operations, less water and exempt compounds (weekly average lb VOC/gal) for each coating category, as listed in Condition 19, Table 1.

SURFACE COATING PERFORMANCE STANDARD

The following condition shall replace Condition 19. of Addendum No. 1, issued May 4, 1995, effective one year after EPA approval of the RACT determination, and Condition 19. of Addendum No. 1 will remain in effect until the compliance date for the source specific RACT requirements:

19. The permittee shall not use surface coatings for ship painting operations that exceed the limits in Table 1 for volatile organic compounds (VOC) per gallon of coating, as applied, less water and exempt compounds. These limits are based on a weekly weighted average of the applied coatings in each category. VOC content may be averaged within a coating category, however excess VOC emissions in one category may not be offset with lowered emissions in another coating category. Compliance shall be determined by dividing the total VOC content (lbs) of the coatings in a category used in one week by the total number of gallons used in that category in that week (Monday 12:01 am thru Sunday 12:00 midnite).

TABLE 1

Weekly Average Content by Coating Category					
Coating Type	General Use — Alkyds & Epoxies	Antifoulant	Prewash Prime	Zinc - Inorganic	Other Specialty
Weekly Average lb VOC per Gallon	3.5	3.7	6.5	5.4	5.5

The Department has determined that these limits represent Reasonably Available Control Technology (RACT) for ship painting. Compliance with these limits must be demonstrated within one year of approval of the RACT determination by the U.S. Environmental Protection Agency. Formal EPA approval will be published in the Federal Register. The Department shall notify the permittee of EPA approval.

SOLVENT MANAGEMENT PRACTICES

The following condition shall replace Conditions 20. and 21. of Addendum No. 1, issued May 4, 1995, effective one year after EPA approval of the RACT determination, and Conditions 20. and 21. of Addendum No. 1 will remain in effect until the compliance date for the source specific RACT requirements:

20. The permittee shall provide training and instruction for contractors and subcontractors working on-site in Best Management Practices for solvent use. These Practices shall include the following emission control procedures:
- A. Use of closed systems for cleaning and flushing paint guns and lines. Flushing systems shall have only the minimum venting required to operate. As an alternative, a non-VOC solvent cleaning system may be used.

- B. Distillation or other approved recovery methods for recovery and reuse of cleaning solvents. All solvents feasible shall be reclaimed.
- C. Use of closed containers for storage and transfer of solvents from bulk stores to work areas.
- D. Use of closed containers for collection of solvent-laden cloths or rags prior to proper disposal.
- E. All personnel working with coatings shall receive at least four hours training in efficient use of solvents, to prevent waste and minimize usage. New employee orientation shall include training on solvent handling and coating record keeping. Existing personnel shall have two hour minimum refresher courses at least annually. Training records shall be maintained and be available for inspection by the Department.

ALL INQUIRIES SHOULD BE DIRECTED TO:

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue, Suite 400
Portland, Oregon 97201
Telephone: (503) 229-5263

263224.pmt



Permit No.: 34-2060
~~Expiration Date: 8-1-97~~
Page 1 of 7 Pages

AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
Telephone: (503) 229-5696

Issued in accordance with the provisions of ORS 468A.040 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

White Consolidated Industries, Inc.
dba Schrock Cabinet Co.
PO Box 547
Hillsboro, Oregon 97123

REFERENCE INFORMATION:

Source Specific RACT Determination,
Submitted 3-22-93
Additional information submitted
7-30-93, and 3-16-94

PLANT SITE LOCATION:

600 SW Walnut Street
Hillsboro, Oregon 97123

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY



Tom Bispham, Northwest Region Administrator

AUG 9 1995

Dated

ADDENDUM NO. 2

As required by OAR 340-22-104, the Department has determined VOC RACT requirements for this source. These modifications are subject to EPA approval and will be effective one year after notice of approval is given to the source. In accordance with OAR 340-14-040, Air Contaminant Discharge Permit No. 34-2060, Conditions 6, 8, 9 and 11 through 16 shall read as follows:



Department of Environmental Quality
Air Quality Division

DEPARTMENT INITIATED MODIFICATION

AIR CONTAMINANT DISCHARGE PERMIT REVIEW REPORT

White Consolidated Industries, Inc.
dba Schrock Cabinet Co.
600 SW Walnut Street
Hillsboro, Oregon 97123

GENERAL BACKGROUND INFORMATION

1. White Consolidated Industries, Inc. operates a cabinet manufacturing facility under the name of Schrock Cabinet Co., located at 600 SW Walnut Street in Hillsboro. The processes include the construction and finishing of kitchen cabinets. Schrock Cabinet Co. employs a three-step process for coating kitchen cabinets. The cabinets receive one coating of stain or toner, one of sealer, and one of topcoat. The coating process includes an overhead conveyor line.
2. This is a Department initiated modification to Air Contaminant Discharge Permit (ACDP) No. 34-2060, which was issued on 4-13-94 and is scheduled to expire on 8-01-97. This modification documents the source specific Reasonably Available Control Technology (RACT) determination that the Department and the permittee conducted pursuant to Oregon Administrative Rules (OAR) 340-22-104 (5), and under the provisions of OAR 340-20-047. This modification establishes RACT limits and/or operating conditions for the processes at the facility which use and emit volatile organic compounds (VOC).

Reasonably Available Control Technology (RACT)

Portland Ozone Attainment Status

3. The Portland Metropolitan area is currently designated as a marginal nonattainment area for ozone. The Schrock Cabinet Co. facility is located within the nonattainment area. However, for the years 1991 through 1993, the Portland area airshed met the criteria for an ozone attainment area. One exceedence of the ozone National Ambient Air Quality Standard of 0.125 occurred in 1991 and 1992, while no exceedences occurred in 1993. At this time, the Department is drafting an ozone maintenance plan to submit to the EPA as part of the Oregon State Implementation Plan. Upon approval of the maintenance plan by the EPA, the Portland area will be considered in attainment with the ozone standard. The RACT permit conditions will be required in the future as an element of the pollution prevention efforts to remain in attainment with the ozone standard.

T Determination

This RACT-permit modification places limits on the VOC content of coatings used in the finishing steps of wood cabinet production and VOC handling methods used in solvent related cleaning. The implementation of the permit conditions will result in lower VOC emissions than previously permitted through the use of coatings containing higher concentrations of solid and utilizing best management practices during solvent cleaning operations, as listed in Condition 14. of the permit Addendum.

The RACT review of the permittee's operations focused on the coating processes.

Coating Processes

The coating processes contribute to the majority (approx. 90%) of Schrock Cabinet Co. VOC emissions. RACT determinations for similar coating operations in other states were evaluated as well as the effectiveness of applying control technologies that capture and remove VOC. The following three areas were included in the coating evaluation:

- a. Alternative coatings
- b. Increased transfer efficiency of coating solids to substrate
- c. Add-on controls

The RACT analysis and supplements submitted by Schrock Cabinet Co. (March 1993, July 1993, and March 1994) included a comparison of the requirements of different states for wood products coatings as included in the RACT/BACT/LAER Clearinghouse. In addition, White Consolidated Industries is a participant in the wood furniture coating regulatory negotiation (reg-neg) process. This is the follow-up process to EPA's draft Control Technique Guideline from October, 1991.

A few of the Clearinghouse entries were potentially comparable to the Schrock Cabinet Co. facility. These RACT decisions included specific coating limits (lb VOC/gal), which were found to be comparable to the coatings already in use at Schrock Cabinet Co.. An increase in transfer efficiency was implied for some facilities by the requirement of a coating application technology, such as Air Assisted Airless (AAA) or high volume, low pressure (HVLP). The operations at these facilities were being reviewed for RACT or BACT determinations (best available control technology). This type of requirement was considered for the Schrock Cabinet Co. facility along with a coating limit where applicable. Add-on controls were required only for facilities subject to LAER (lowest achievable emission rate) and BACT requirements. Typical add-on controls include thermal oxidation and carbon adsorption.

RACT for the coating processes at Schrock Cabinet Co. was determined to include the use of high-solids coatings, water based coatings, and the most efficient transfer of coating using applicator technology. The

proposed coating standards are equivalent to those proposed in the reg-neg process (as compared with the Jan. 9, 1994 straw person draft document). Although the coatings in use at the facility are of a similar VOC content to limits in other States, it was determined that further VOC reductions were feasible and reasonable through the use of a water based topcoat. As determined in the RACT analysis submittal, add-on controls do not represent RACT due to the cost of capturing the dilute VOC airstream followed by a control technology. The cost of these systems exceed \$3,000 per ton VOC removed, with most control devices showing a cost effectiveness of greater than \$10,000 per ton VOC removed.

Coating limits were established for :

VOC Limits for Coatings, as applied, to Wood Products

COATINGS CATEGORY	LB VOC/GAL (approx. equivalent)*	LB VOC/LB SOLID
Water Based Topcoats	(3.0)	0.8
Pigmented Coatings	4.5	—
High Solids Topcoats ^b	—	1.8
Alkyd Amino Vinyl Topcoats	(5.0)	2.0
High solids Sealers	(5.1)	1.9
Alkyd Amino Sealers	(5.4)	2.3
Sealers used with Water Based Topcoats	5.6	—

- a) The equivalent as calculated using the standard solvent density of 7.36 lb/gal and the density of the solid material in typical coatings of the category. The lb VOC/gal standard should be used as an estimate: actual compliance should be based on the lb VOC/lb solid standard where one is given.
- b) High solids topcoats other than alkyd amino vinyl topcoats.

The coating limits are expressed in terms of pound VOC/pound solid applied (lb VOC/lb solid). This is consistent with the units proposed through the reg-neg process. Where a limit is expressed in terms of lb VOC/gal, as applied, no limits were proposed in the reg-neg process, and the equivalent limit was not determined due to insufficient coating-solids content data.

As a special condition, the permittee must use the most efficient spray application method appropriate for each coating. The water-based topcoat and high-solids coatings will be applied using conventional air spray. These methods of application have shown to be more effective (by White Consolidated Industries) than the HVLP or air-assisted airless (AAA) equipment due to the physical properties of the water-based formulation. The use of conventional air spray equipment is allowed for touch-up operations and for up to 5% of the total annual gallonage. The 5% allowance for use of conventional air spray on coatings other than water-based or high solids is designed to give Schrock some flexibility to apply custom coatings for short production runs or special orders.

lvent Cleaning Operations

The solvent cleaning operations permit conditions are based on the Alternative Control Techniques Document--Industrial Cleaning Solvents (EPA-453/R-94-015) document along with the measures proposed by the permittee. The EPA document summarizes nationwide regulations for industrial cleaning solvents. The measures in the permit are some of the typical requirements specified for cleaning equipment from coating operations when a solvent-based cleaning solution is used. The purpose of the solvent recovery still is to encourage recycling of spent solvent that is captured during the cleaning operations. The spray equipment must be cleaned in such a way as to capture the cleaning solvent and minimize evaporative losses. Any cleaned equipment that holds cleaning liquid (solvent) must be drained into a sealable container. This measure is required to prevent the cleaning liquid to be sprayed out of the equipment onto an exposed surface and evaporated. The final measure is intended to make all other cleaning operations be conducted utilizing best management practices. This is part of the reg-neg language that recognizes the futility is specifying conditions for all cleaning operations, when good housekeeping and standard pollution prevention practices are all that is needed to minimize the evaporation of VOC.

ANT SITE EMISSION LIMIT (PSEL)

The RACT adjusted PSEL is 213 tpy, based on 105,290 gallons of coatings and solvents, at an average of 4.04 lb VOC/gal.

The PSEL has been adjusted from the previous permit due to the establishment of RACT limits. Because of limited data from the baseline operations, it is difficult to accurately determine the amount of adjustment based on the RACT limits. However, this was done simplistically through a comparison of the average gallon of coating (finishing material) from baseline and to the average gallon of coating, post RACT implementation. Within the last few years, Schrock Cabinet Co. has had an average lb VOC/gal coating of approximately 5.2 to 5.3, which is the same as the baseline operations. The simplistic comparison results in an adjusted PSEL:

Baseline: 5.25 lb VOC/gal average, 105,290 gallons
RACT adjusted: 4.04 lb VOC/gal average
 $(4.04 \text{ lb VOC/gal}) * (105,290 \text{ gal/yr}) / (2000 \text{ lb/ton}) = 213 \text{ tons/year}$

- a) The RACT adjusted average VOC content was determined by the permittee, replacing current solvent based topcoats with a water based topcoat. This estimate is based on 1993 coatings usage but replacing VOC content with those specified in the RACT limits, resulting in 34,094 gallons of finishing material producing 137,800 lbs of VOC emissions for an average of 4.04 lb VOC/gal. This represents a 23% reduction from the baseline emission rate: $276 \text{ tpy} - 213 \text{ tpy} = 63 \text{ tpy}$, $63/276 * 100\% = 22.8\%$
9. The Plant Site Emission Limit for normal operation is the same as the baseline emission rate of 213 tons per year, and 2,560 lbs/day. The daily VOC emission rate is based on 213 tons/yr divided by 250 days/yr plus 50% increase to account for highest day usage fluctuations.

PUBLIC NOTICE

0. The RACT determination is submitted to the EPA as a source specific revision to the State Implementation Plan and contains performance standards and decreases in the emission limits at the facility. Federal regulations require a notice to the public and a hearing for a State Implementation Plan submittal. A public hearing was held on January 12, 1995 in Hillsboro to receive oral comments on the proposed permit. Written comments were accepted until 5:00 pm on January 13, 1995. Based on the written and oral comments, minor revisions were made to the permit.

RJB:GBD:e
July 20, 1995
PERMITS\A342060R

File: 2701/Alina

Oregon

BITT -

October 4, 1995

File: En/compliance
 TV Application
 TV Activity
 Other

DEPARTMENT OF
 ENVIRONMENTAL
 QUALITY

Intel Corporation
 Attn.: Bonnie Gariepy
 5200 NE Elam Young Parkway
 Hillsboro, Oregon 97124

Re: Issuance of Oregon Title V Operating
 Permit No. 34-2681

Dear Permittee:

The Department of Environmental Quality has completed processing your Oregon Title V Operating Permit application and has issued the attached permit. Also enclosed are the revised reporting and modification forms for Title V sources. Please use these forms for all reports submitted to the Department and all requests for permit modifications.

The permit will become effective upon the date signed, unless you request a hearing before the Environmental Quality Commission or its authorized representative. Any such requests shall be made in writing within 20 days of the date of this letter, and shall clearly specify which permit conditions are being challenged and why, including each alleged factual or legal objection. Permit conditions that are not contested shall be in effect upon the date the permit was signed (OAR 340-28-2300). Once effective, the Title V Operating Permit will replace your existing Air Contaminant Discharge Permit.

You are urged to carefully read the permit and take all possible steps to ensure compliance with the conditions established. If you have any questions regarding the permit, please contact George Yun at (503) 229-6093.

Sincerely,

John J. Ruscigno
 John J. Ruscigno, P.E., Manager
 Program Operations Section
 Air Quality Division

JJR:JW:j
 LTR\AH74890.DOC

Attachment
 cc: Region
 Source File



811 SW Sixth Avenue
 Portland, OR 97204-1390
 (503) 229-5696
 TDD (503) 229-6993
 DEQ-1 40

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
OREGON TITLE-V OPERATING PERMIT

Northwest Region
2020 SW 4th, Suite 400
Portland, OR 97201
Telephone: (503) 229-5554

Issued in accordance with the provisions of
ORS 468A.040, 468A.300 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

Intel Corporation
5200 NE Elam Young Parkway
M/S AL4-91
Hillsboro, Oregon 97124

INFORMATION RELIED UPON:

Application No.: 14659
Received: 11/15/94

PLANT SITE LOCATION:

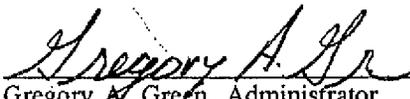
3585 SW 198th Avenue
Aloha, Oregon 97007

LAND USE COMPATIBILITY STATEMENT:

From: Washington County Department
of Land Use & Transportation

Dated: 9/20/91

ISSUED BY DEPARTMENT OF ENVIRONMENTAL QUALITY


Gregory A. Green, Administrator

Date 10/3/95

NATURE OF BUSINESS:

Semiconductor Manufacturing

PRIMARY SIC:

3674

RESPONSIBLE OFFICIAL:

Name: Sunlin Chou
Title: Vice President and Director of
Components Technology Development

FACILITY CONTACT PERSON

Name: Bonnie Gariepy
Title: Sr. Environmental Engineer
Phone: (503) 642-6592

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LIST OF ABBREVIATIONS USED IN THIS PERMIT

ACDP	Air Contaminant Discharge Permit
acf	Actual cubic foot
ASTM	American Society of Testing and Materials
CCCU	Carbon Concentration Condensation Unit
CFR	Code of federal regulations
CO	Carbon monoxide
DEQ	Oregon Department of Environmental Quality
dscf	dry standard cubic foot
EF	emission factor
EPA	US Environmental Protection Agency
EU	Emissions unit
FBR	Free Board Ratio
FCAA	Federal Clean Air Act
gr/dscf	grain per dry standard cubic foot
GC/FID	Gas chromatograph/Flame ionization detection
HAP	Hazardous Air Pollutant as defined by OAR 340-32-130
HCFC	Hydro-chloro-fluoro-carbons
ID	Identification number
I&M	Inspection and maintenance
LPG	Liquified petroleum gas
MB	Material balance
MMBtu	Million British thermal units
mvac	Motor vehicle air conditioner
NG	Natural gas
NO _x	Oxides of nitrogen
O ₂	Oxygen
OAR	Oregon Administrative Rules
ORS	Oregon Revised Statutes
O&M	Operation and maintenance
Pb	Lead
PCD	Pollution control device
PM	Particulate matter
PM ₁₀	Particulate mater less than 10 microns in size
ppm	Part per million
ppmv	Part per million by volume
PSEL	Plant Site Emission Limit
RACT	Reasonably Available Control Technology
scf	Standard cubic foot
SERP	Source Emission Reduction Plan
SIP	State Implementation Plan
SNAP	Significant New Alternative Policy
SO ₂	Sulfur dioxide
ST	Source test
VE	Visible emissions
VOC	Volatile organic compound

PERMITTED ACTIVITIES

1. Until such time as this permit expires or is modified or revoked, the permittee is allowed to discharge air contaminants from those processes and activities directly related or associated with the air contaminant sources in accordance with the requirements, limitations, and conditions in this permit. [OAR 340-28-2100 and 340-28-2200(2)]

2. All Conditions in this permit are federally enforceable and state enforceable except as noted below. [OAR 340-28-2140 and 340-28-2150]
 - 2.a. Conditions 5.b., 6., 11.b., 15., G21. and associated monitoring requirements are enforceable by the state only.

 - 2.b. Attachment-1 of this permit provides a cross reference for SIP rules that have been renumbered in the current Oregon Administrative Rules.

EMISSIONS UNIT (EU) AND POLLUTION CONTROL DEVICE (PCD) IDENTIFICATION

3. The emissions units regulated by this permit are the following [OAR 340-28-2120(3)]:
 - 3.a. Emissions Unit #1 (EU1)

VOC Emissions Unit		Stationary Source ID	Pollution Control Device (PCD)	PCD ID.
All activities emitting Volatile Organic Compounds (VOCs) at the Aloha campus except EU2 and EU3 Boilers.	FAB4	EU1.1	Wet Scrubber	PCD1
	FAB5		None	-
	D1	EU1.2	Carbon Concentration Condensation Unit (CCCU)	PCD26
	AL3	EU1.3	None	-
	AL4			

3.b. Emissions Unit #2 (EU2)

Commercial Boilers	Stationary Source ID	Capacity 10 ⁶ btu/hr
FAB4 #1 Boiler	EU2.1	3
FAB4 #2 Boiler	EU2.2	3
FAB4 #3 Boiler	EU2.3	3
FAB5 #1 Boiler	EU2.4	6.5
FAB5 #2 Boiler	EU2.5	6.5
FAB5 #3 Boiler	EU2.6	6.277
FAB5 #4 Boiler	EU2.7	6.277
FAB5 #6 Boiler	EU2.9	1.255
FAB5 #7 Boiler	EU2.10	4.185
FAB5 #8 Boiler	EU2.11	4.185
ALA #1 Boiler	EU2.12	2.929
ALA #2 Boiler	EU2.13	2.929
ALA #3 Boiler	EU2.14	2.929

3.c. Emissions Unit #3 (EU3)

Industrial Boilers w/ Low NO _x Burner	Stationary Source ID	Capacity 10 ⁶ btu/hr
D1 #1 Boiler	EU3.1	20.922
D1 #2 Boiler	EU3.2	20.922
D1 #3 Boiler	EU3.3	29.4
D1 #4 Boiler	EU3.4	20.922
D1 #5 Boiler	EU3.5	20.922

4. The VOC Pollution Control Devices (PCD) regulated by this permit are the following [OAR 340-28-2120(3)]:

Pollution Control Device	PCD ID	Emission Unit/ Process Controlled
Wet Scrubber	PCD1	EU1.1: VOC emissions from FAB4 building
Carbon Concentration Condensation Unit (CCCU)	PCD26	EU1.2: VOC emissions from D1 building

EMISSION LIMITS AND STANDARDS

The following Table-I through Table-III contain summaries of applicable requirements other than the Plant Site Emission Limit (PSEL), along with the monitoring methods for the emissions units to which those requirements apply.

Table-I. Facility-wide Emission Limits and Standards

Applicable Requirements	Condition Number	Pollutant/ Parameter	Limit/ Standard	Monitoring Requirements	
				Method	Condition Number
340-21-060(2)	5.a.	Fugitive/dust	No nuisance	Complaint Investigation & Recordkeeping	20.a.
ACDP Condition #6.	5.b.	Odor			
340-30-520	6.a.	PM	250 microns	Inspection & Recordkeeping	20.b.
340-30-530	6.b.	SO ₂	1000 ppm		
ACDP Condition #9. (340-27-015)	7.	Ozone	Implementation of SERP	Recordkeeping	20.c.
40 CFR Part 82, Subpart E.	8.a.	Ozone depleting chemicals	Labeling requirements	Inspection & Recordkeeping	20.d.
Section 612 of the FCAA	8.b.		SNAP - alternatives		

5. The permittee shall comply with the following nuisance-control requirements:
 - 5.a. The permittee shall not cause, suffer, allow, or permit any materials to be handled, transported, or stored; or a building, its appurtenances, or a road to be used, constructed, altered, repaired or demolished; or any equipment to be operated, without taking reasonable precautions to prevent particulate matter from becoming airborne. [OAR 340-21-060(2)]
 - 5.b. The permittee shall not allow the emission of odorous matter or other fugitive emissions so as to create nuisance conditions off the permittee's property. [04/19/93 ACDP 34-2681, Condition 6] This condition is only enforceable by the state.

6. The permittee shall comply with the following state-only enforceable conditions:
 - 6.a. Particulate matter which is larger than 250 microns and which may be deposited upon the real property of another person shall not be emitted. [OAR 340-30-520]
 - 6.b. The permittee shall not cause or allow the emission of sulfur dioxide in excess of 1000 ppm from any air contaminant source, as measured in accordance with Condition 26. of this permit. [OAR 340-30-530]

7. In the event an Air Pollution Alert, Warning, or Emergency Episode is declared in the Portland area by the Department, the permittee shall take the action appropriate to the episode condition as required by Oregon Administrative Rules 340, Division 27 "Air Pollution Emergencies." The permittee shall take such action when the permittee first becomes aware of such a declaration whether through news media, direct contact with the Department, or from other sources. The Source Emission Reduction Plan (SERP) shall be available on the source premises for inspection by Department personnel. [04/19/93 ACDP 34-2681, Condition 9]

8. The permittee shall comply with the following federal requirements when using ozone-depleting substances:
 - 8.a. If the permittee uses class I or class II substances at the plant site, the permittee is subject to all of the applicable requirements as specified in 40 CFR Part 82, Subpart E; The Labeling of Products Using Ozone-depleting substances.
 - 8.b. The permittee shall be allowed to switch from any ozone-depleting substance to any alternative that is listed in the Significant New Alternatives Program (SNAP) promulgated pursuant to section 612 of the Act without requiring a permit revision.

Table-II. Emissions Unit Specific Emission Limits and Standards

EU/PCD ID	Applicable Requirements	Condition Number	Pollutant/Parameter	Limit/Standard	Monitoring Requirements	
					Method	Condition Number
EU2 & EU3	340-21-015(2)(b)	9.a.	Opacity	20%	VE periodic monitoring & Recordkeeping	21.a.
	340-21-020(1)(b)	9.b.	PM ₁₀ /PM	0.1 gr/scf		
PCD1	340-28-620	10.	O&M	O&M	Recordkeeping	21.b.

9. Particulate emissions from each of the EU2 and EU3 boilers shall not exceed the following limits:
- 9.a. An opacity equal to or greater than twenty percent (20%), excluding uncombined water vapor, for a period aggregating more than three (3) minutes in any one (1) hour, as measured in accordance with Condition 26. of this permit. [OAR 340-21-015(2)(b)]
 - 9.b. 0.1 grains per dry standard cubic foot, corrected to 12% carbon dioxide or 50% excess air, as a three (3) hour average, as measured in accordance with Condition 26. of this permit. [OAR 340-21-020(1)(b)].
10. The permittee shall operate the PCD1 in accordance with the following Operation and Maintenance (O&M) requirements: [OAR 340-28-620]:
- 10.a. The scrubber water flow rate (gpm) shall be maintained at the flow rate corresponding to the optimum VOC removal efficiency, which must be verified through source tests specified in Condition 24.k.
 - 10.b. The scrubber shall be maintained and serviced in accordance with the manufacturer's recommendation.

Table-III. Emission Limits and Standards Applicable to Insignificant Activities

Applicable Requirements	Condition Number	Pollutant/Parameter	Limit/Standard	Monitoring Requirements	
				Method	Condition Number
340-21-030(2)	11.a.	PM ₁₀ /PM	0.1 gr/scf	I&M Recordkeeping	22.a.
340-30-500	11.b.	Opacity	20%		
340-22-930 and 1030	11.c.	VOC	Coating Specifications	I&M Recordkeeping	22.a. & b.

11. The permittee shall comply with the following requirements applicable to insignificant activities:
- 11.a. Particulate emissions from any single non-fuel burning and non-fugitive air contaminant source shall not exceed 0.1 grains per dry standard cubic foot, as measured in accordance with Condition 26. of this permit. [OAR 340-21-030(2)]
 - 11.b. Visible emissions from any single non-fuel burning air contaminant source shall not exceed an opacity equal to or greater than twenty percent (20%) for a period aggregating more than thirty (30) seconds in any one (1) hour, as measured in accordance with Condition 26. of this permit. [OAR 340-30-500(2)] This condition is only enforceable by the state.
 - 11.c. The permittee shall not knowingly use or contract for the use of any noncomplying architectural coating or spray paint manufactured after July 1, 1996. In addition, all VOC-containing architectural coatings shall be stored in closed containers when not being accessed, filled, emptied, maintained, repaired or otherwise used. [OAR 340-22-930 and 340-22-1030]

PLANT SITE EMISSION LIMITS

12. The plant site emissions shall not exceed the following: [OAR 340-28-1010 and 340-28-1020]
- 12.a. PROCESS (EU1) PSEL

Pollutant	Limit	Units	Monitoring Requirements
VOC	8.0	tons/wk	Chemical Mass Balance, parametric monitoring, and source test as specified in Condition 24.
	190	tons/yr	

- 12.b. COMBUSTION SOURCES (EU2 & EU3) PSEL

Pollutant	Limit	Units	Fuel Usage; Annual and Hourly Units	Monitoring Requirements
PM ₁₀	0.8	tons/mo	EU2 max capacity = 53x10 ⁶ btu/hr EU3 max capacity = 113x10 ⁶ btu/hr	Compliance Monitoring with the monthly PSEL is specified in Condition 23.b.
	6.4	tons/yr	(2.01 + 7.98 =) 9.99 million therms n.g./yr	Compliance Monitoring with the annual PSEL is specified in Condition 23.a.
SO ₂	0.3	tons/mo	same as above	same as above
	1.3	tons/yr		

Pollutant	Limit	Units	Fuel Usage; Annual and Hourly Units	Monitoring Requirements
CO	3.6	tons/mo	same as above	same as above
	32.0	tons/yr		
NO _x	3.2	tons/mo	same as above	same as above
	21.6	tons/yr		
VOC	0.2	tons/mo	same as above	same as above
	1.5	tons/yr		

12.b.i. The EU2 and EU3 boilers shall only burn natural gas, and use propane (LPG) as back-up.

13. Emissions from the "Aggregate Insignificant Activities" shall not exceed the following aggregate limits, as specified in OAR 340-28-110(5). The monitoring shall be conducted in accordance with Condition 22.c. of this permit. [OAR 340-28-1060(2)]

13.a. Particulate emissions shall not exceed 1.0 ton per year.

13.b. Hazardous Air Pollutants emissions shall not exceed 2.5 tons per year.

SOURCE-SPECIFIC CONDITIONS

REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT) STANDARDS [OAR 340-22-104 (5)]

14. 14.a. Volatile Organic Compound emissions from EU1, based on a weekly average, shall not exceed 2×10^{-4} pounds (lbs) per square centimeter (cm²) of wafer processed.

14.b. The permittee shall comply with the specifications outlined below when operating solvent cleaning stations. Non-VOC solvents as defined in OAR 340-22-100 are exempt from the requirements of this section.

14.b.i. Each sink must operate with a freeboard ratio of at least 0.7, and have a visible fill line.

14.b.ii. Each sink must be equipped with a cover that is readily opened and closed, and a cover must be closed during idle periods if the sink contains any free standing solvents.

14.c. Reasonably Available Control Technology (RACT) standards identified in Condition 14.a. and 14.b. become effective one year from the date of EPA's approval as a revision to the Oregon State Implementation Plan (SIP).

15. If EPA disapproves the proposed RACT standards identified in Condition 14., the permittee shall provide the alternative RACT controls for the affected operations according to the schedule outlined below:
 - 15.a. By no later than 90 days after a written notification by the Department, unless otherwise extended by the Department pursuant to OAR 340-22-104 (6), the permittee shall submit a complete (alternative) control strategy to the Department for review and approval.
 - 15.b. By no later than 365 days after the date of the Department's written notification of EPA's approval of the (alternative) control strategy, the permittee shall comply with the approved RACT standards.

POLLUTION PREVENTION AND PRE-APPROVED CHANGES

16. The permittee shall develop and implement the pollution prevention program in accordance with the schedule provided and adhere to the conditions specified below [OAR 340-28-610]:
 - 16.a. The pollution prevention program shall be implemented according to the following schedule:
 - 16.a.i. By no later than 60 days after the issuance of this permit, the permittee shall submit to the Department the proposed pollution prevention program.
 - 16.a.ii. Within 30 days after submittal, the Department will review the proposed program with respect to the program elements specified in Condition 16.b., and preliminarily determine adequacy of the information submitted. By no later than 30 days after the Department approves the proposed program, the permittee shall prepare the pollution prevention program in detail and submit to the Department.
 - 16.a.iii. The Department will review and comment on the program within 30 days of submittal. By no later than 15 days after the Department's comment, if any, the permittee shall either incorporate the Department recommendation or provide justification/explanation for rejecting the Department recommendation.
 - 16.a.iv. Within 15 days of receipt of the final program submittal, the Department will notify the permittee of the approval status.
 - 16.a.v. If the Department does not respond within the time line specified, the program submittal will be deemed approved by the Department.
 - 16.b. The pollution prevention program shall include at minimum the following program elements:
 - 16.b.i. The process to formulate performance goals and objectives to comply with the VOC and HAP limits through the implementation of pollution prevention.

- 16.b.ii. Develop a partnership/agreement between the permittee and its materials supplier(s) to reduce HAP and VOC from their raw materials/products to the extent possible.
 - 16.b.iii. Develop a partnership/agreement between the permittee and its equipment vendor(s) to reduce HAP and VOC emissions to the extent possible by integrating pollution prevention into equipment design.
 - 16.b.iv. Formulate data collection necessary for the evaluation of pollution prevention effectiveness.
 - 16.b.v. Develop an employee training program to promote pollution prevention at the permitted facility.
 - 16.b.vi. Statement of commitment to pollution prevention at the permitted facility.
- 16.c. In the event the permittee opts to make a major change in the approved program, the permittee shall notify the Department in writing at least 30 days prior to making the change. The permittee shall at minimum demonstrate the need for the modification to the program, and a detailed description of the modification. The modification procedure shall follow the time-line as specified in Conditions 16.a.iii through 16.a.v. In the event the permittee makes a minor change in the approved program, the permittee shall include a description of the change and its justification in the annual report submitted pursuant to item 16.d.
- 16.d. Monitoring and Reporting requirements:
- 16.d.i. Each March 15 following program approval, the permittee shall prepare a detailed progress report on an annual basis describing accomplishments made under the approved program.
 - 16.d.ii. The final report prepared on March 15 of the last year of this permit term shall include a summary of the activities taken during this permit term, and a self evaluation of the over-all effectiveness of the program.
 - 16.d.iii. All documents and reports must be kept at the permitted facility and shall be made available to the Department representatives for inspection at the facility.
 - 16.d.iv. Each April 15 following program approval, the permittee shall submit to the Department an annual executive summary, or the final executive summary in the last year of this permit term, describing the over-all efforts and definitive results.
17. Pursuant to the requirements of OAR 340-28-2270, the permittee is approved to make physical changes and changes in method of operation that would increase the maximum capacity of a stationary source to emit VOC, provided the following conditions are met:

- 17.a. Such changes are limited to installing new VOC emitting activities and to making physical changes or changes in the method of operation of existing VOC emitting activities at the stationary sources comprising EU1.
 - 17.b. No new stationary source shall be added to EU1.
 - 17.c. Increases in maximum capacity to emit of a stationary source at EU1 resulting from changes approved under this condition shall have been offset by emission reductions at EU1 achieved through the pollution prevention program outlined in Condition 16. such that the maximum capacity to emit of EU1 does not exceed the weekly VOC Plant Site Emission Limit (PSEL) for EU1 specified in Condition 12.a.
 - 17.d. The physical changes and changes in method of operation approved under this condition do not involve changes to the Pollution Control Devices (PCD) as identified in Condition 4, or cause a degradation in the performance of any PCD.
 - 17.e. Any new VOC emitting activities and any physical changes or changes in the method of operation of existing VOC emitting activities must be subject to, and comply with, the RACT requirements specified in Conditions 14. and 15.
 - 17.f. Any new VOC emitting activities and any physical changes or changes in the method of operation of existing VOC emitting activities must be subject to, and comply with, the source-specific VOC Compliance monitoring requirements specified in Condition 24.
 - 17.g. No new applicable requirement is triggered.
 - 17.h. Monitoring and Reporting requirements:
 - 17.h.i. The permittee shall conduct monitoring related to this pre-approval condition in accordance with the monitoring protocols identified in Condition 25:
 - 17.h.ii. Notice of Completion: In accordance with OAR 340-28-2270(3)(f), the permittee shall include in the semi-annual report (submitted per Conditions 30. & 31.) a summary of any pre-approved changes made to EU1 pursuant to this condition during the 6-month period covered by the report, if the maximum capacity to emit of any stationary source at the end of the 6-month period covered by the report is greater than the maximum capacity to emit at the end of the 6-month period covered by the previous semi-annual report, as determined from monitoring conducted per Condition 25.b.
18. The pollution prevention (#16) and pre-approval (#17) conditions as outlined above are a one term experiment which will expire at the completion of the first term of this Oregon Title-V Operating Permit 34-2681, unless otherwise agreed upon by mutual consent to continue, which will be decided at the time of permit renewal.

AGGREGATE HAPs EMISSION LIMITS

19. The permittee shall emit organic (VOC) and inorganic (non-VOC) hazardous air pollutants (HAPs), on a total aggregate plant site basis, within the following annual limits in order to retain the area source status for HAPs:
- 19.a. Aggregate organic HAPs emissions, based on a twelve month rolling average, shall be less than 10 tons per year.
 - 19.b. Aggregate inorganic HAPs emissions, based on a twelve month rolling average, shall be less than 10 tons per year.

MONITORING REQUIREMENTS

20. The permittee shall conduct monitoring related to the facility-wide emissions limits and standards established in Conditions 5. through 8. in accordance with the following procedures and frequencies:
- 20.a. The permittee shall maintain a log recording all written complaints or complaints received via telephone or in person by the responsible official or a designated appointee that specifically refer to a complaint of odor/visible nuisance from the permitted facility. Said log shall also record permittee's actions to investigate, make a determination as to the validity of the complaint, and resolve the problem within two working days or within such longer time (not to exceed 7 days) as is reasonably necessary to resolve the problem that led to the complaint.
 - 20.b. Once during each semi-annual reporting period, the permittee shall inspect and determine whether any air contaminant source could emit particulate matter larger than 250 microns, and whether it could cause sulfur dioxide emission in excess of 1000 ppm. The permittee shall record in a log the results of this inspection.
 - 20.c. The permittee shall maintain a log summarizing actions taken during an applicable air pollution episode, pursuant to Condition 7.
 - 20.d. The permittee shall conduct all monitoring and recordkeeping related to the Labeling of Products Using Ozone-depleting substances; 40 CFR Part 82, Subpart E. In addition, the permittee shall keep records of all SNAP alternative compounds used in place of class I or class II ozone-depleting substances.
21. The permittee shall conduct monitoring related to the EU-specific emission limits and standards established in Conditions 9. and 10. in accordance with the following procedures and frequencies:
- 21.a. The minimum monitoring requirements for Condition 9. are specified as follow:
 - 21.a.i. As long as the boilers burn natural gas (or propane/LPG as a backup), the permittee is assumed to be in compliance with the 20% visible standard (9.a.).

- 21.a.ii. As long as the boilers burn natural gas (or propane/LPG as a backup), the permittee is assumed to be in compliance with the 0.1 grain loading standard (9.b.).
- 21.a.iii. The permittee shall monitor the type(s) of fuel used in EU2 and EU3 boilers as required in Condition 23. The permittee shall notify the Department in writing and get an approval prior to using fuels other than natural gas (or propane/LPG as a backup) in the EU2/EU3 boilers, at which time the permittee may become subject to the construction/operation modifications requirements as specified in OAR 340-28-2270.
- 21.b. The minimum monitoring requirements for the "Operation and Maintenance" protocols of Condition 10. are specified as follow:
 - 21.b.i. If the scrubber water pumping (flow) rate is changed and the FAB4 is in operation, the permittee shall record the water flow rate and the corresponding pressure drop across the packing, and the date of the change.
 - 21.b.ii. The permittee shall keep a log of any maintenance and/or service performed that would affect the system performance.
- 22. The permittee shall conduct monitoring related to the Emissions limits and standards applicable to Insignificant Activities established in Conditions 11. and 13. in accordance with the following procedures and frequencies:
 - 22.a. Once during each semi-annual reporting period, which may coincide with the monitoring conducted per Condition 20.b., the permittee shall inspect and determine whether the categorically insignificant activities and the activities included in the aggregate insignificant emissions are in compliance with all applicable requirements, condition 11. The permittee shall record in a log the results of this inspection.
 - 22.b. The permittee shall monitor the VOC content of architectural coatings and spray paint by obtaining written certification from suppliers or contractors that:
 - 22.b.i. architectural coatings provided by the supplier or used by the contractor comply with the requirements of OAR 340-22-1020; and
 - 22.b.ii. spray paint provided by the supplier or used by the contractor complies with the requirements of OAR 340-22-920.
 - 22.c. The minimum monitoring requirements for emission limits established in Condition 13. for "aggregate insignificant activities" are as follow:
 - 22.c.i. Once during each permit term, the emissions from the activities included under the aggregate insignificant emissions limits shall be estimated in accordance with OAR 340-28-2120(3)(c)(E). The emissions estimation may coincide with the permit renewal application.

22.c.ii. Once during each semi-annual reporting period, which may coincide with the monitoring conducted per Condition 22.a., the permittee shall inspect and make a determination that the activities included under the aggregate insignificant emissions limits have not been modified in such a manner that would increase the emissions above the aggregate insignificant emissions limit.

22.c.iii. The permittee shall maintain a log for recording the results of the inspections required by condition 22.c.

23. The permittee shall determine compliance with the Combustion sources PSELS established in Condition 12.b. in accordance with the formula and procedures specified:

$$E = EF \times P/2,000 \text{ where;}$$

- E = pollutant emissions, ton/yr
- EF = PSEL Emission Factors, see Table below (& see Attachments)
- P = annual natural gas usage (10⁶ acf)

23.a. For each pollutant, the actual annual natural gas usage is multiplied by the EF below to determine annual emissions:

Emission Factors (lbs/10⁶ acf)

Pollutant	PM ₁₀	SO ₂	NO _x	CO	VOC
EU2 EF	12	2.6	100	21	3.8
EU3 EF	13.7	2.6	31.5	78.8	2.8

23.b. For each pollutant, the actual monthly natural gas usage is multiplied by the EF below to determine monthly emissions:

Emission Factors (lbs/10⁶ acf)

Pollutant	PM ₁₀	SO ₂	NO _x	CO	VOC
EU2 EF	12	3.8	100	21	3.8
EU3 EF	13.7	3.8	31.5	78.8	2.8

23.c. Monitor and record the amount of natural gas (or LPG) used in the EU2 and EU3 boilers on a monthly basis.

23.d. Monitor and record the amount of natural gas (or LPG) used in EU3 boilers on a daily basis.

23.e. Monitor and record the quantity and type of fuel(s) other than natural gas (or LPG) used in both EU2 and EU3 boilers.

24. The permittee shall determine compliance with the "VOC PSELS" established in Condition 12.a.; "RACT standards" established in Conditions 14. and 15.; and the "Aggregate HAP limits" established in Condition 19. in accordance with the following chemical mass balance procedures. The minimum monitoring frequency specified below is also the required interval between two consecutive monitoring periods.

<u>Parameter</u>	<u>Minimum Monitoring Frequency</u>
24.a. Quantity of VOCs used.	2 months
24.b. Quantity of hazardous and non-hazardous waste shipped off site, which include solvent recovered by PCD26; and the representative VOC content of each (waste) batch as measured by EPA Method 8015M GC/FID** or other equivalent method.	2 months
** For solvents which the EPA standard method 8015 does not cover, the modified method (EPA 8015M GC/FID) or other equivalent methods shall be used. The permittee shall record in a log all methods used to determine the VOC content of waste.	
24.c. Quantity of VOCs controlled by PCD1.	2 months
24.d. A total aggregate HAP emission; separate VOC HAPs from non-VOC HAPs	monthly
24.e. Total "cm ² " of wafer processed	Weekly
24.f. The Bi-monthly emission factor (EF) derived from items a, b, c, and the sum of e.	2 months
$EF = (a - b - c) / \Sigma_{bl} (e)$	
24.g. The weekly VOC emission from the weekly production e. and the most recent EF as determined in f.	Weekly

$$\text{Weekly emission} = EF * (e)$$

<u>Parameter</u>	<u>Minimum Monitoring Frequency</u>
24.h. Weekly RACT compliance determination. " lbs VOC / cm ² Wafer " = g / e	Weekly
24.i. Free Board Ratio (FBR)	None required for automatic control. For manually operated stations, monitor and record on a monthly basis.
24.j. The permittee is not subject to the monitoring conditions 24.h. and 24.i. associated with the RACT standards of Condition 14., until the RACT standards become effective as outlined in Condition 14.c. The RACT monitoring protocol may be revised if alternative RACT is established pursuant to Condition 15.	
24.k. Source testing Requirements	
24.k.i. Within 3 months of permit issuance, the permittee shall conduct source test on PCD1 and establish the VOC removal efficiency (%) of PCD1 utilized in the VOC emissions calculations (see item 24.c. above).	
24.k.ii. A second source (verification) test shall be conducted in the third year of the permit term.	
24.k.iii. Source tests on PCD1 shall be conducted in accordance with the Department's Source Sampling Manual, unless an alternative (DEQ/EPA approved) method is approved in writing by the Department.	
25. The permittee shall conduct monitoring related to the <u>pre-approval conditions</u> established in Condition 17. in accordance with the following procedures and frequencies:	
25.a. On a weekly basis, the permittee shall determine the maximum capacity to emit of each stationary source at EU1 by using the latest EF derived from Condition 24.f., and compare the results to the weekly PSEL established in Condition 12.a.:	
"Maximum capacity to emit" = EF * maximum wafer production capacity (cm ² /week)	

- 25.b. At the end of each 6-month reporting period, which may coincide with the monitoring conducted per Condition 20.b. or 22.a., the permittee shall inspect and determine whether each pre-approved change made to the EU1 stationary sources complies with the criteria set forth in Conditions 17.a., 17.b., and 17.d. through 17.g.
- 25.c. At the end of each 6-month reporting period, the permittee shall determine the maximum capacity to emit of each stationary sources at EU1. The permittee shall then combine the "Maximum capacity to emit" of all stationary sources at EU1, and compare the sum (EU1's maximum capacity) to the sum determined as of the end of the previous six month period. As specified in Condition 17.h.ii., if the current maximum capacity of EU1 is greater than the maximum capacity of EU1 as of the end of the previous six month period, the permittee shall submit a Notice of Completion and include at a minimum the following information:
- 25.c.i. A summary description of the new and/or modified activities that caused the increase in maximum capacity to emit of EU1.
 - 25.c.ii. Date of completion and the date new and/or modified activities commenced or will begin.
 - 25.c.iii. The net increase in capacity of EU1 due to the new and/or modified activities.
 - 25.c.iv. A brief summary describing how the increases in the capacity of EU1 have been offset by the pollution prevention program outlined in Condition 16. such that the weekly VOC PSEL for EU1 specified in Condition 12.a. is not exceeded. A detailed report shall follow in accordance with the reporting requirements outlined in Condition 16.d.

TEST METHODS AND PROCEDURES [OAR 340-28-2130(1)]

26. Although source testing is not required for the permit conditions listed below, if source testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the following test methods and averaging times to measure the pollutant emissions:

Permit Condition	Test Method	Averaging time	Special conditions
6.b.	EPA Method 6 or 6C	average of three one-hour test runs	None.
11.a.	ODEQ Methods 5, 7, or 8	average of three one-hour test runs	ODEQ Method 8 is for sources with exhaust gases at essentially ambient conditions (e.g. material handling cyclones); ODEQ Method 7 is for direct contact combustion or other heat sources (e.g. particle and veneer dryers); ODEQ Method 5 is for indirect contact fuel burning equipment (e.g. boilers) and any other source.

Permit Condition	Test Method	Averaging time	Special conditions
9.a.	EPA Method 9	aggregate of three (3) minutes in any 60 minute period	The test duration may be less than 60 minutes if a violation of the standard is documented before the full 60 minute observation period is completed.
11.b.		aggregate of thirty (30) seconds in any 60 minute period	
9.b.	ODEQ Method 5	average of three test runs	The sample time for each test run shall be no less than one hour (31.8 dscf) and no longer than eight hours.

All testing shall be conducted in accordance with the Department's Source Sampling Manual unless otherwise specified in the special conditions column of the table above.

RECORDKEEPING REQUIREMENTS [OAR 340-28-2130(3)(b)]

27. The permittee shall maintain the following general records of required monitoring information which include the following:
- 27.a. semi-annual inspection results of the status of aggregate insignificant activities;
 - 27.b. semi-annual inspection results of the status of the categorically insignificant activities;
 - 27.c. the date, place as defined in the permit, and time of sampling or measurements;
 - 27.d. the date(s) analyses were performed;
 - 27.e. the company or entity that performed the analyses;
 - 27.f. the analytical techniques or methods used;
 - 27.g. the results of such analyses;
 - 27.h. the operating conditions as existing at the time of sampling or measurement; and
 - 27.i. the records of quality assurance for continuous monitoring systems (including but not limited to quality control activities, audits, calibrations drift checks).

28. The permittee shall maintain the following specific records of required monitoring information which include the following:
- 28.a. Complaint log and investigation reports;
 - 28.b. Operation & Maintenance records;
 - 28.c. Inspection/survey records;
 - 28.d. Quantity and type of fuel used in EU2 on a monthly basis;
 - 28.e. Quantity and type of fuel used in EU3 on a daily basis;
 - 28.f. Weekly productions in total "cm²" of wafer start;
 - 28.g. Records of chemicals used by type, quantity, and VOC/HAP contents;
 - 28.h. Records of waste shipment and analysis results;
 - 28.i. Continuous monitoring charts, if any;
 - 28.j. Records of all calculated PSEL and RACT emissions; and
 - 28.k. Records resulting from monitoring related to Pollution Prevention and Pre-approval Conditions.
29. The permittee shall retain records of all required monitoring data and support information for a period of at least five (5) years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. All existing records required by the previous Air Contaminant Discharge Permit shall also be retained for five (5) years.

REPORTING REQUIREMENTS [OAR 340-28-2130(3)(c) and 340-28-2160]

30. The permittee shall submit four (4) copies of the semi-annual monitoring report covering the period from January 1 to June 30, using Department approved forms, by July 30, unless otherwise approved in writing by the Department. One copy of the report shall be submitted to the Air Quality Division, two copies to the regional office, and one copy to the EPA. The semi-annual monitoring report shall include the semi-annual compliance certification.
31. The permittee shall submit four (4) copies of the annual monitoring report, using Department approved forms, by February 15, unless otherwise approved in writing by the Department. One copy of the report shall be submitted to the Air Quality Division, two copies to the regional office, and one copy to the EPA.

32. The annual monitoring report shall consist of:

- 32.a. The emission fee report.
- 32.b. The emission statement. [OAR 340-28-1520]
- 32.c. The excess emissions upset log. [OAR 340-28-1440]
- 32.d. The second semi-annual compliance certification covering the period from July 1 to December 31. [OAR 340-28-2160]

Source-specific Reporting Requirements

- 32.e. Quantity of natural gas burned on a monthly and annual basis for EU2 and EU3. Also certify that no other fuels than natural gas (or propane/LPG) have been used.
- 32.f. Tabulate the bi-monthly VOC emissions based on actual solvent monitoring as determined from data collected per Condition 24: a, b, and c.
- 32.g. Tabulate the bi-monthly VOC emissions based on EF and production as determined from the (2 months) sum of weekly emissions (24.g). Also report the bi-monthly EFs (lbs VOC/cm² wafer) used for each bi-monthly monitoring period. Note that the bi-monthly sum of weekly emissions based on EF does not have to equal the actual emission determined from the actual solvent monitoring, i.e., results obtained by this condition (32.g.) do not have to equal results obtained per item 32.f. above.
- 32.h. A summary of maximum weekly VOC emissions noted during each (2 months) monitoring period and corresponding weeks from Condition 24.g. Report all exceedances of the weekly PSEL.
- 32.i. A summary of maximum weekly RACT emissions noted during each 2 month monitoring period and corresponding dates (weeks) from Condition 24.h., once the RACT standard becomes effective. Report all exceedances of the source-specific RACT standard of 2×10^{-4} lbs VOCs/cm² wafer processed.
- 32.j. Report all exceedances of the RACT Free Board Ratio limit (Condition 14.b) as determined from Condition 24.i., once the RACT standard becomes effective.
- 32.k. A summary of the (monthly) rolling HAP emissions as determined from Condition 24.d.

Addresses of regulatory agencies:

DEQ-Northwest Region
2020 SW 4th, Suite 400
Portland, OR 97201
Telephone (503) 229-5554

DEQ-Air Quality Division
811 SW Sixth Ave.
Portland, OR 97204
Telephone (503) 229-5359

Air Compliance Division
US EPA
Mail Stop AT-084
1200 Sixth Avenue
Seattle, WA 98101

NON-APPLICABLE REQUIREMENTS

33. Air Quality Oregon Administrative Rules (OAR) currently determined not applicable to the permittee are listed below [OAR 340-28-2190]:

33.a. The following OARs are not applicable because the source is not in the source category cited in the rules:

340-21-027, 210 to 245.

340-22-010 to 025, 106, 110 to 175, 190 to 640; except 340-22-405 to 410.

340- Divisions 23; Division 24 except 340-24-005, 035 to 040; Division 25 except 340-25-505, 510, 515, 525, 554.

340-28-500 to 520, 800 to 820, 2170, 2680.

340-30-420, 460, 500.

340-31-010 to 055.

340-32-220, 250, 4500.

33.b. The following OARs are not applicable because the source does not have specific emissions units cited in the rules:

340-21-025.

340-22-180, 183, 186.

33.c. The following OARs are not applicable because the source is outside the special control, non-attainment areas or county cited in the rules.

340-27-025.

340-30-012 to 230, 600 to 620.

33.d. The following OARs are not applicable because the method/procedure is not used by the facility.

340-28-1040.

33.e. The following OARs applied in the past and the fees have been paid.

340-28-2400 to 2550, 2570.

34. Federal applicable requirements currently determined not applicable to the permittee are listed below:

40 CFR Parts 55, 57, 60 except Subpart Dc (60.40c), 61, 63 Subpart T, 68, 72, 73, 75, 76, 77, and 78.

40 CFR Part 82 (except subpart F),

40 CFR Parts 85 through 89,

Section 129 of the FCAA, Solid Waste,

Section 183(e) of the FCAA, Consumer and commercial products,

Section 183(f) of the FCAA, Tank Vessels.

GENERAL CONDITIONS

G1. General Provision

Terms not otherwise defined in the permit shall have the meaning assigned to such terms in the referenced regulation.

G2. Reference materials

Where referenced in this permit, the version of the following materials are effective as of the dates noted unless otherwise specified in the permit:

- a. Source Sampling Manual; January 23, 1992 - State Implementation Plan Volume 3, Appendix A4;
- b. Continuous Monitoring Manual; January 23, 1992 - State Implementation Plan Volume 3, Appendix A6; and
- c. All state and federal regulations as in effect on the date of issuance of this permit.

G3. Compliance [OAR 340-28-2120(3)(n)(C), 340-28-2130(6), and 340-28-2160(4)]

- a. The permittee shall comply with all conditions of the federal operating permit. Any permit condition noncompliance constitutes a violation of the Federal Clean Air Act and/or state rules and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. Any noncompliance with a permit condition specifically designated as enforceable only by the state constitutes a violation of state rules only and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.
- b. Any schedule of compliance for applicable requirements with which the source is not in compliance at the time of permit issuance shall be supplemental to, and shall not sanction noncompliance with the applicable requirements on which it is based.
- c. For applicable requirements that will become effective during the permit term, the source shall meet such requirements on a timely basis unless a more detailed schedule is expressly required by the applicable requirement.

G4. Compliance Monitoring and Enforcement [OAR 340-28-300, 340-28-1100, 340-28-1120, 340-28-1130, 340-28-1140, 340-28-2130(3), 340-28-2160, 340-32-270]

- a. For the purpose of submitting semi-annual compliance certification reports, the permittee shall use, at a minimum, the information obtained from the monitoring requirements of this permit. The permittee shall not knowingly falsify or render inaccurate any monitoring device or method required to be maintained or followed by the permit.

- b. The information obtained from the monitoring required by this permit can be used directly for enforcement.

G5. Certification [OAR 340-28-300, 340-28-2120(5) and 340-28-2160(2)]

Any document submitted to the Department pursuant to this permit shall contain certification by a responsible official of truth, accuracy and completeness. All certifications shall state that based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and, complete. The permittee shall promptly, upon discovery, report to the Department a material error or omission in these records, reports, plans, or other documents.

G6. Excess Emissions Reporting [OAR 340-28-1400 through 340-28-1460]

- a. The permittee shall report all excess emissions in accordance with OAR 340-28-1400 through 340-28-1460. In summary, the permittee shall immediately (i.e., as soon as possible but in no case more than one hour after the beginning of the excess emission period) notify the Department by telephone or in person of any excess emission, other than pre-approved startup, shutdown, or scheduled maintenance. Notification shall, to the extent reasonably ascertainable at the time of notification, include the source name, nature of the emissions problem, name of the person making the report, name and telephone number of the contact person for further information, date and time of the onset of the upset condition, whether or not the incident was planned, the cause of the excess emission (e.g., startup, shutdown, maintenance, breakdown, or other), equipment involved in the upset, estimated type and quantity of excess emissions, estimated time of return to normal operations, efforts made to minimize emissions, and a description of remedial actions to be taken. Follow-up reporting shall be made in accordance with Department direction and OAR 340-28-1430(2) and 340-28-1440.
- b. Notification shall be made to the appropriate regional office. Current Departmental telephone numbers are:

Portland	229-5554	Medford	776-6010	Bend	388-6146
Pendleton	276-4063	Salem	378-8240		
- c. In the event of any excess emissions which are of a nature that could endanger public health and occur during nonbusiness hours, weekends, or holidays, the permittee shall immediately notify the Department by calling the Oregon Accident Response System (OARS). The current number is 1-800-452-0311.
- d. If startups, shutdowns, or scheduled maintenance may result in excess emissions, the permittee shall submit startup, shutdown, or scheduled maintenance procedures used to minimize excess emissions to the Department for prior authorization, as required in OAR 340-28-1410 and 340-28-1420. New or modified procedures shall be received by the Department in writing at least 72 hours prior to the first occurrence of the excess emission event. The permittee shall abide by the approved procedures and have a copy available at all times.

- e. The permittee shall notify the Department of planned startup/shutdown or scheduled maintenance events only if required by permit condition or if the source is located in a nonattainment area for a pollutant which may be emitted in excess of applicable standards.
- f. The permittee shall maintain and submit to the Department a log of planned and unplanned excess emissions, on Department approved forms, in accordance with OAR 340-28-1440.

G7. Permit Deviation Reporting [OAR 340-28-2130(3)(c)(B)]

The permittee shall promptly report, by telephone or in person, any deviations from permit requirements that do not cause excess emissions, including those attributable to upset conditions, as defined in the permit, the probable cause of such deviations, and any corrective actions or preventative measures taken. Deviations are instances when any permit condition is violated. "Prompt" is defined as within seven (7) days of the deviation.

G8. Open Burning [OAR Chapter 340, Division 23]

The permittee is prohibited from conducting open burning, except as may be allowed by OAR 340-23-025 through 340-23-115.

G9. Asbestos [40 CFR Part 61, Subpart M (federally enforceable), OAR 340-32-5600 through 340-32-5650 and OAR Chapter 340, Division 33 (state-only enforceable)]

The permittee shall comply with OAR 340-32-5600 through 340-32-5650, OAR Chapter 340 Division 33, and 40 CFR Part 61, Subpart M when conducting any renovation or demolition activities at the facility.

G10. Stratospheric Ozone and Climate Protection [40 CFR 82 Subpart F, OAR 340-22-420]

The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, Recycling and Emissions Reduction.

G11. Permit Shield [OAR 340-28-2190]

- a. Compliance with this permit shall be deemed compliance with all applicable requirements as of the date of permit issuance provided that:
 - i. such applicable requirements are specifically identified in the permit, or
 - ii. such applicable requirements are specifically identified in the "Non-Applicable Requirements" section of this permit.

- b. Nothing in this rule or in any federal operating permit shall alter or affect the following:
- i. the provisions of ORS 468.115 (enforcement in cases of emergency) and ORS 468.035 (function of department);
 - ii. the liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;
 - iii. the applicable requirements of the national acid rain program, consistent with section 408(a) of the FCAA; or
 - iv. the ability of the Department to obtain information from a source pursuant to ORS 468.095 (investigatory authority; entry on premises, status of records).
- c. Sources are not shielded from applicable requirements that are enacted during the permit term, unless such applicable requirements are incorporated into the permit by administrative amendment, as provided in OAR 340-28-2230(1)(h), or significant permit modification.

G12. Inspection and Entry [OAR 340-28-2160(3)]

Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Department of Environmental Quality, or an authorized representative (including an authorized contractor acting as a representative of the EPA Administrator), to perform the following:

- a. enter upon the permittee's premises where an Oregon Title V operating permit program source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;
- b. have access to and copy, at reasonable times, any records that must be kept under conditions of the permit;
- c. inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
- d. as authorized by the FCAA or state rules, sample or monitor, at reasonable times, substances or parameters, for the purposes of assuring compliance with the permit or applicable requirements.

G13. Fee Payment [OAR 340-28-2560, and 340-28-2580 through 340-28-2740]

The permittee shall pay an annual base fee and an annual emission fee for all regulated air pollutants except for carbon monoxide, any class I or class II substance subject to a standard promulgated under or established by Title VI of the Federal Clean Air Act, or any pollutant that is a regulated air pollutant solely because it is subject to a standard or regulation under section 112(r) of the Federal Clean Air Act. The permittee shall submit payment to the Department of Environmental Quality, Business Office, 811 SW 6th Avenue, Portland, OR 97204, within 30 days of the date the Department mails the fee invoice or August 1 of the year following the calendar year for which emission fees are paid, whichever is later. Disputes shall be submitted in writing to the Department of Environmental Quality. Payment shall be made regardless of the dispute. User-based fees shall be charged for specific activities (e.g., computer modeling review, ambient monitoring review, etc.) requested by the permittee.

G14. Off-Permit Changes to the Source [OAR 340-28-2220(2)]

- a. The permittee shall monitor for, and record, any off-permit change to the source that:
 - i. is not addressed or prohibited by the permit;
 - ii. is not a Title I modification;
 - iii. is not subject to any requirements under Title IV of the FCAA;
 - iv. meets all applicable requirements;
 - v. does not violate any existing permit term or condition; and
 - vi. may result in emissions of regulated air pollutants subject to an applicable requirement but not otherwise regulated under this permit or may result in insignificant changes as defined in OAR 340-28-110.
- b. A contemporaneous notification, as required in OAR 340-28-2220(2)(b), shall be submitted to the Department and the EPA.
- c. The permittee shall keep a record describing off-permit changes made at the facility that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under the permit, and the emissions resulting from those off-permit changes.
- d. The permit shield of condition G11 shall not extend to off-permit changes.

G15. Section 502(b)(10) Changes to the Source [OAR 340-28-2220(3)]

- a. The permittee shall monitor for, and record, any section 502(b)(10) change to the source, which is defined as a change that would contravene an express permit term but would not:
 - i. violate an applicable requirement;
 - ii. contravene a federally enforceable permit term or condition that is a monitoring, recordkeeping, reporting, or compliance certification requirement; or
 - iii. be a Title I modification.
- b. A minimum 7-day advance notification shall be submitted to the Department and the EPA in accordance with OAR 340-28-2220(3)(b).
- c. The permit shield of condition G11 shall not extend to section 502(b)(10) changes.

G16. Administrative Amendment [OAR 340-28-2230]

Administrative amendments to this permit shall be requested and granted in accordance with OAR 340-28-2230. The permittee shall promptly submit an application for the following types of administrative amendments upon becoming aware of the need for one, but no later than 60 days of such event:

- a. legal change of the registered name of the company with the Corporations Division of the State of Oregon, or

b. sale or exchange of the activity or facility.

G17. Minor Permit Modification [OAR 340-28-2250]

The permittee shall submit an application for a minor permit modification in accordance with OAR 340-28-2250.

G18. Significant Permit Modification [OAR 340-28-2260]

The permittee shall submit an application for a significant permit modification in accordance with OAR 340-28-2260

G19. Construction/Operation Modification [OAR 340-28-2270]

No permittee shall construct or make modifications required to be reviewed under OAR 340-28-2270, the construction/operation modification rule, without receiving a Notice of Approval in accordance with OAR 340-28-2270. The permittee should allow 60 days for Department review of applications for a construction/operation modification if public notice is not required, or 180 days if public notice is required.

G20. New Source Review Modification [OAR 340-28-1900]

No permittee shall construct or make modifications required to be reviewed under New Source Review (OAR 340-28-1900(1)) without receiving an Air Contaminant Discharge Permit (ACDP) (OAR 340-28-1700). The permittee should allow 180 days for Department review of an ACDP application for New Source Review.

G21. Hazardous Air Pollutant Modification for Non-major HAP Sources [OAR 340-32-230 (state-only enforceable)]

No permittee shall make a physical change in or change in the method of operation of a non-major HAP source that results in an increase in the potential to emit so that the major source threshold (i.e., 10 tons of an individual HAP or 25 tons of aggregate HAPs) is exceeded, without first obtaining a Notice of Approval in accordance with OAR 340-28-2270. The permittee should allow 180 days for Department review of applications for construction/operation modifications and issuance of a Notice of Approval.

G22. Need to Halt or Reduce Activity Not a Defense [OAR 340-28-2130(6)(b)]

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

G23. Duty to Provide Information [OAR 340-28-2130(6)(e) and OAR 340-28-300]

The permittee shall furnish to the Department, within a reasonable time, any information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Department copies of records required to be retained by the permit.

G24. Reopening for Cause [OAR 340-28-2130(6)(c) and 340-28-2280]

- a. The permit may be modified, revoked, reopened and reissued, or terminated for cause as determined by the Department.
- b. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.
- c. A permit shall be reopened and revised under any of the circumstances listed in OAR 340-28-2280(1)(a).
- d. Proceedings to reopen and reissue a permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists.

G25. Severability Clause [OAR 340-28-2130(5)]

Upon any administrative or judicial challenge, all the emission limits, specific and general conditions, monitoring, recordkeeping, and reporting requirements of this permit, except those being challenged, remain valid and must be complied with.

G26. Permit Renewal and Expiration [OAR 340-28-2120(1)(a)(D) and 340-28-2210]

- a. This permit shall expire at the end of its term. Permit expiration terminates the permittee's right to operate unless a timely and complete renewal application is submitted as described below.
- b. Applications for renewal shall be submitted at least 12 months before the expiration of this permit, unless the Department requests an earlier submittal. If more than 12 months is required to process a permit renewal application, the Department shall provide no less than six (6) months for the owner or operator to prepare an application. Provided the permittee submits a timely and complete renewal application, this permit shall remain in effect until final action has been taken on the renewal application to issue or deny the permit.

G27. Permit Transference [OAR 340-28-2230(1)(d)]

The permit is not transferrable to any person except as provided in OAR 340-28-2230(1)(d).

G28. Property Rights [OAR 340-28-110(9)(c) and 340-28-2130(6)(d)]

The permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations, except as provided in OAR 340-28-2190.

G29. Permit Availability [OAR 340-28-110(9)(c) and 340-28-2200(2)]

The permittee shall have available at the facility at all times a copy of the Oregon Title V Operating Permit and shall provide a copy of the permit to the Department or an authorized representative upon request.

ALL INQUIRIES SHOULD BE DIRECTED TO:

Northwest Region
2020 S.W. 4th Avenue, #400
Portland, OR 97201-5884
Telephone: (503) 229-5263

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ATTACHMENT-1

The following Oregon Administrative Rules have been renumbered from Division 20 to Division 28. The Division 20 rules are enforceable by the EPA until the proposed State Implementation Plan (SIP) revisions have been approved by the EPA. At that time, the Division 28 rules will be enforceable by the EPA. Currently, the Division 28 rules are enforceable by the Department only.

State-only Enforceable Rules

Federally Enforceable Rules

340-28-500	340-20-005
340-28-510	340-20-010
340-28-520	340-20-015
340-28-800	340-20-020
340-28-810	340-20-025
340-28-820	340-20-030
340-28-1010	340-20-301
340-28-1020	340-20-310
340-28-1030	340-20-315
340-28-1040	340-20-320
340-28-1100	340-20-035
340-28-1120	340-20-040
340-28-1130	340-20-045
340-28-1140	340-20-046
340-28-1400	340-20-350
340-28-1410	340-20-360
340-28-1420	340-20-365
340-28-1430(2) through (5)	340-20-370
340-28-1440	340-20-375
340-28-1700	340-20-140
340-28-1900	340-20-220

T342681

Department of Environmental Quality
 Air Quality Division

OREGON TITLE-V OPERATING PERMIT APPLICATION REVIEW REPORT

Intel Corporation
 5200 NE Elam Young Pkway, #AL4-19
 Hillsboro, OR 97124-6497

PSEL CRED	SOURCE TEST	COMS	CEMS	AMB MON	COMPL SCHED	SPEC COND	REPORT				EXCESS		NSPS	NSR	PSD	NESHAPS	SIZE	
							A	S	Q	M	R	N					A1	A2
	X					X	X				X		X				X	

This permit review report is formatted to accommodate the permit conditions and thus recommended to be reviewed simultaneously and in direct reference to the permit line items. This review report intends to convey all pertinent emission data, rules, policies, theories and engineering assumptions used to construct the Oregon Title-V Operating Permit 34-2681. The primary source of information used to construct this permit is the referenced application (No. 14659).

Oregon Title-V Operating Permit 34-2681 focuses on numerous permitting issues which include a source specific RACT determination, increase in the boiler PSELS, and the pre-approved changes and pollution prevention protocols. Applicable regulatory standards and associated monitoring, recordkeeping, reporting requirements, along with the applicable conditions from the existing Air Contaminant Discharge Permit (ACDP) are incorporated into the Oregon Title-V Operating Permit 34-2681 as outlined:

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BACKGROUND INFORMATION

The proposed Oregon Title-V Operating Permit replaces an existing Air Contaminant Discharge Permit (ACDP) which was issued on 4/19/93 and was originally scheduled to expire on 11/01/96. The proposed permit applies to all existing and planned activities at the Intel Aloha Campus occupying 54.5 acres of properties located at 3585 Southwest 198th Avenue, Aloha, Oregon, 97007. Mr. Sunlin Chou is currently identified as the primary responsible official for the Aloha Campus operations.

Intel submitted a Land Use Compatibility Statement (LUCS) to Washington County Department of Land Use & Transportation (WCDLUT), and the Washington County signed and approved the LUCS on 9/20/91. Other permits issued or required by the Department for this source include NPDES permit 100917 for non-process wastewater discharge. The process wastewater is discharged to 74

one of the Unified Sewerage Agency's (USA) wastewater treatment plants of Washington County. This source is also a registered large quantity hazardous waste generator; ORD 060591963. The VOC emission calculations include monitoring of the hazardous waste streams.

Facility Description

Intel Corporation operates one of its semiconductor manufacturing plants in Aloha, Oregon, hereby occasionally referred to as the Aloha campus. There are five main buildings at the Aloha campus; AL3, AL4, FAB4, FAB5, and D1. Buildings AL3 and AL4 are primarily office buildings. Buildings FAB4 and FAB5 are the main manufacturing facilities. The D1 currently serves as a technology development facility, for newer generation of semiconductors, which would gradually be converted to a manufacturing facility. Besides these five main buildings, there are several other (relatively small) buildings located on the west side of the Aloha campus which are currently used by contractors and consultants working for Intel.

The Aloha facility is located in a nonattainment area for ozone and Carbon Monoxide (CO). The facility is a major (> 100 tons/yr) source of VOCs (ozone precursor), but is a minor (32 tons/yr) source of CO. Intel is also a minor source of Hazardous Air Pollutants (HAPs).

This source is not subject to federal regulations for Prevention of Significant Deterioration (PSD), or National Emissions Standards for Hazardous Air Pollutants (NESHAPS).

Compliance History

The most recent facility inspections were conducted on 9/21/95, 9/07/94, and 9/21/93; and the source was found to be in compliance with all existing ACDP conditions. A file review also indicates, ever since the beginning of operation, no public complaints were received by the Department. The permittee's unblemished compliance history is one of the factors influencing the level of compliance demonstration requirements established in this permit. Item 20.a. of this review report provides a good example.

Intel's (only) Operating Scenario

Intel has identified one operating scenario covering a broad spectrum of semiconductor manufacturing operations. The production steps traditionally include application of

photoresist, UV light exposure, developing, etch, deionized water rinse, doping, and acid/solvent rinse steps. Under this one operating scenario, the source operations are divided into three emission units. Each identified emission unit (EU) is grouped with respect to common applicable rule requirements, and this grouping allows each EU to be regulated under uniform compliance monitoring requirements.

The semiconductor manufacturing processes emit VOCs from chemicals/materials that they use. In terms of specific processes, VOCs are emitted from the photoresist applications (mainly spin coaters and developers), solvent cleaning stations, and storage/handling operations. Over 90% of the plant site VOC emissions come from the photoresist applications, and the remaining 10% is mostly generated from the solvent cleaning stations. These VOC generating processes located throughout the Aloha campus are grouped under Emission Unit 1 (EU1).

The operating scenario at EU1 covers the plant site VOC emissions, excluding a small amount of VOCs in the boiler flue gases. Regulations pertaining to Intel's (non-fuel burning) process VOC emissions are uniform, and by grouping the VOC emission sources as one emission unit (EU1) eliminates any ambiguity associated with the compliance demonstration with respect to the PSEL and RACT, or applicability of New Source Review (NSR) and Prevention of Significant Deterioration (PSD). This would perhaps become increasingly more apparent as this permit document is reviewed further.

The operating schedule is proposed at 24 hrs/day x 365 days/yr; meaning this permit does not directly impose a cap on the operating hours nor the production rate. Instead the permit focuses on the actual VOC emissions by strict enforcement of the VOC PSEL and RACT conditions. As will be discussed in the PSEL section, the EU1's VOC PSEL essentially represents a cap and it also serves as the starting point from which to determine the NSR/PSD applicability. The RACT standards proposed in this permit are also designed to limit VOC emissions on a unit production basis. A combination of VOC PSEL and RACT standards effectively regulates the permittee's actual VOCs emissions.

Boilers are separated into two emission units (EU2 & EU3) based on the size (industrial or commercial) category in which the pre-determined fuel usage is the primary limiting factor for each unit. Unlike the EU1 process VOC PSEL, the combustion PSELs established for EU2 and EU3 boilers represent a cap on fuel usage. All boilers are limited to burn natural gas only as identified in the Intel's only operating scenario. The hourly (short term) emissions from the EU2/EU3 boilers are based on each Emission Unit's maximum capacity, and theoretically this maximum capacity cannot be exceeded, unless the boiler is physically

modified. All EU2/EU3 boilers are operated below their operating capacity. As discussed, annual operations of the EU2/EU3 boilers are limited by the allowable natural gas usage, and these limits are further reflected in the boiler PSELs.

PERMITTED ACTIVITIES

1. Condition 1 basically sets the tone that the permittee is allowed to discharge regulated air pollutants only in accordance with the limits and standards established in the Oregon Title-V Operating Permit 34-2681. The effective date of this permit is the date of the permit issuance.
2. Condition 2 makes a clear distinction between the state-only enforceable conditions from those conditions enforceable by both state and the U.S. EPA. All conditions in this permit are enforceable by both the EPA and State, except those conditions and associated monitoring specifically identified in item 2.a. as state-only enforceable.

The monitoring (plus recordkeeping/reporting) requirements associated with the state-only applicable requirements are cited in item 2.a. by reference only, for reason that some of these monitoring protocols are also used by the federally enforceable conditions. Specific monitoring is extractable by its association to specific applicable requirements.

A list of non-applicable rules and the summary of reasons are provided in the Non-applicable requirements section, toward the end of this permit.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

3. Existing air contaminant sources at the facility are grouped as follow:
 - 3.a. Emission Unit #1 (EU1)

Buildings AL3 and AL4 are primarily office buildings with no measurable emissions (or worth measuring) and they are listed here for identification purpose only. FAB4 and FAB5 are existing manufacturing facilities, and D1 is currently a technology development center which may also (gradually) become a manufacturing facility.

Emission Unit #1 (EU1) in a physical sense is the entire Aloha campus excluding EU2 and EU3 boilers. It includes all non-fuel burning activities and processes at the Aloha campus that emit VOCs. These activities/processes are grouped as one emission unit since they emit the same regulated air pollutant (VOCs), trigger the same applicable requirements, and share the same compliance monitoring protocols.

As listed in the permit item 3.a. (table), EU1 is divided into three (3) stationary sources; EU1.1, EU1.2, and EU1.3. FAB4 and FAB5 buildings share a common material flow (distribution & waste collection) and they are combined to comprise a stationary source EU1.1. The current emission capacity of EU1.1 is 190 tons per year. The second stationary source EU1.2 is the D1 building. It utilizes its own material flow and employs newer technology. The D1 building (EU1.2) is currently under expansion and its projected emission capacity is rated at 53 tons per year. As discussed, a stationary source EU1.3 consists of AL3 and AL4 office buildings with no rated emission capacity.

3.b./c. Emission Unit #2 (EU2) and Emission Unit #3 (EU3)

Currently there is a total of sixteen (16) boilers, and two (EU3.4 & EU3.5) more are planned to be installed during the 94/95 calendar year. This permit is for the total capacity of 18 boilers. The electric boiler (EU2.8) has been omitted for obvious reason. All (EU3) D1 boilers fall under the industrial boiler category (10 to 100 million btu/hr) and the rest (EU2) are commercial type (0.5 to 10 million btu/hr). All EU2 and EU3 boilers are permitted to burn natural gas (and propane backup) only. In addition, all EU3 boilers would be operated with the LowNO_x control.

<u>EU2</u>	<u>Boiler ID</u>	<u>Yr installed.</u>	<u>Max. BHP</u>	<u>Fuel</u>
EU2.1	FAB4 - #1	1977	66.7	n.gas
EU2.2	FAB4 - #2	1977	66.7	n.gas
EU2.3	FAB4 - #3	1977	66.7	n.gas
EU2.4	FAB5 - #1	1978	144.4	n.gas
EU2.5	FAB5 - #2	1978	144.4	n.gas
EU2.6	FAB5 - #3	1992	139.5	n.gas
EU2.7	FAB5 - #4	1992	139.5	n.gas
EU2.9	FAB5 - #6	1993	27.9	n.gas
EU2.10	FAB5 - #7	1993	93.0	n.gas

EU2.11	FAB5.- #8	1993	93.0	n.gas
EU2.12	AL4 - #1	1990	65.1	n.gas
EU2.13	AL4 - #2	1990	65.1	n.gas
EU2.14	AL4 - #3	1990	65.1	n.gas

<u>EU3</u>	<u>Boiler ID</u>	<u>Yr installed</u>	<u>Max. BHP</u>	<u>Fuel</u>
EU3.1	D1 - #1	1992	465	n.gas
EU3.2	D1 - #2	1992	465	n.gas
EU3.3	D1 - #3	1993	653	n.gas
EU3.4	D1 - #4	1994	465	n.gas
EU3.5	D1 - #5	1994	465	n.gas

<u>Baseline Boilers</u>	<u>10⁶ btu/hr (gal/hr)</u>
EU2.1 (FAB4 - #1)	3 (22.8)
EU2.2 (FAB4 - #2)	3 (22.8)
EU2.3 (FAB4 - #3)	3 (22.8)
EU2.4 (FAB5 - #1)	6.5 (49.5)
EU2.5 (FAB5 - #2)	6.5 (49.5)
EU2 Baseline Capacity:	22 x 10 ⁶ btu/hr (167 gal/hr)

Note the boiler capacity and chronological information contained in this section shall be used to track changes in the boilers' emission capacity since the baseline and determine applicability of NSR/PSD when necessary. The baseline capacity of EU2 is based on the fuel oil usage of 1.47 million gallons per year. Attachment A7 contains estimation of emissions from EU2 boilers based on their baseline oil capacity. The EU3 boilers did not exist during baseline and therefore the baseline capacity of EU3 is set equal to zero.

This permit review determined the EU3 boilers to be NSPS boilers, pursuant to 40 CFR (§) Part 60.40c, Subpart Dc, "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units". Each of the five (5) EU3 boilers is capable of burning natural gas (or LPG) only. None of the EU3 boilers generate steam, and they do not heat any materials that would be used in the heat transfer operations. However, as noted above (465 BHP \approx 20.9 X 10⁶ btu/hr & 653 BHP \approx 29.4 X 10⁶ btu/hr), each EU3 boiler's capacity is greater than the subpart-Dc lower size cut-off (10 X 10⁶ btu/hr), and the EU3 boilers are indeed used partially to heat (hot) water used throughout the Aloha campus, thus triggering one of the subpart-Dc applicability.

4. VOCs Pollution Control Devices: Intel operates two pieces of VOC emission control equipment. A wet scrubber (PCD1) was installed and went into operation in late 1994. A wet scrubber controls water miscible VOCs emitted from the FAB4 building. The scrubber effluent containing water soluble chemicals is routed to one of the wastewater treatment plants operated by Unified Sewerage Agency of Washington County, and this wastewater discharge is indirectly regulated by the Department through the pre-treatment program.

The other VOC control device (PCD26) is the Carbon Concentration Condensation Unit (CCCU), and it also has been installed and began operations in 1995. The PCD26 is dedicated to controlling VOC emissions arising from operations conducted in D1 building (EU1.2).

- VOC emission control devices -

Pollution Control Device (PCD)	PCD ID	Emission Unit/Process Controlled	Design Parameters	Design efficiency
Wet Scrubber (Spray Tower)	PCD1	VOC emissions from FAB4 building (EU1.1)	$F_{gas} = 6,000$ acfm $F_{H2O} = 100-150$ gpm $P_{drop} = 6.0$ in. H ₂ O	> 90%
Carbon Concentration Condensation Unit (CCCU)	PCD26	VOC emissions from D1 building (EU1.2)	$F_{gas} = 2,000$ acfm The VOC removal efficiency is rated at above 90%, but this efficiency rate (%) is not a necessary parameter to complete the VOC CMB, as described in detail below.	

PCD26 The CCCU (PCD26) is designed to treat an air stream relatively dilute with low concentration of VOCs. The CCCU utilizes a carbon adsorption/reactivation technology coupled with a condenser to recover VOCs. The VOC condensate recovered from PCD26 is directly piped to the solvent waste storage tank, and this is the reason the PCD26 control efficiency (normally obtained through source testing) is not needed to complete the chemical mass balance (CMB), a method used in this permit as the compliance monitoring protocol for the plant site VOC emissions.

The CCCU consists of a carbon adsorption tower, a desorption tower, and a condenser laid out in series. Process air stream from EU1.2 relatively dilute with VOCs is directed to the bottom of the adsorption tower, where the treated air exits through the top. The adsorption tower is constructed with a series of "tilted" sieve trays designed to move (utilizing gravity force) solid Bead Activated Carbon (BAC) from top tray to the next one below and so on down to the bottom. VOC laden air stream moving upwards fluidizes the BACs, which in turn adsorbs VOCs in the air stream.

Carbon beads (BAC) laden with VOCs exit the adsorption tower and enter the desorption tower, where a small (manageable) volume of air laden with the VOC-stripping gas is introduced to reactivate the BAC by desorbing/stripping VOCs from it. Reactivated BACs are returned to the adsorption tower, in which the cycle is continuous. The VOC laden air (with stripping gas) stream exiting the desorption tower contains optimum amount of VOCs and is routed to the condenser for efficient recovery.

There are basically two control options available for (relatively) concentrated solvent laden air exiting the desorption tower: thermal destruction or condensation. The condenser control option (unlike thermal control) eliminates the formation of combustion by-products, and it is the preferred method, and the method chosen by Intel. The condenser option also simplifies the VOC monitoring since the amount of solvent recovered is already an inherent part of the overall chemical mass balance. As reflected in the permit VOC monitoring condition, where PCD1's control efficiency is needed and must be verified through source test, the PCD26 control efficiency is not necessary to complete the CMB. Of minor note, the thermal control traditionally have been subject to additional monitoring requirements such as measuring the capture and destruction efficiency, and monitoring the combustion temperature.

EMISSION LIMITS AND STANDARDS

This section contains all applicable emission limits and standards other than the PSEL and the source-specific standard such as reasonably available control technology (RACT). The applicable limits and standards of this section are further divided into three sub-categories as follow: Table-I contains those limits applicable to the entire facility, and Table-II contains the specific limits applicable to the emission units and

pollution control devices identified, and lastly Table-III summarizes the applicable limits of "insignificant" activities.

Facility-wide Limits and Standards

5. Condition 5.a. reflects OAR 340-21-060(2) and is applicable to all sources located inside Special control areas as defined in OAR 340-21-010, or when ordered by the Department in other areas. Intel is located inside Washington County, within the Special control areas defined in the rules.

Condition 5.b. as written establishes a basis for regulating odor and other unforeseeable nuisance problems that may arise in the future.

6. Condition 6. includes two state-only enforceable requirements. The (250 micron) particulate fall out standard is applicable to all permitted sources located inside the tri-county area that do not have specific industrial standards, and thus applicable to Intel. The 1000 ppm SO₂ standard is also applicable to all permitted sources located inside the tri-county area. The tri-county consists of Clackamas, Multnomah, and Washington Counties.

7. This condition requires the permittee to implement the appropriate procedures as outlined in their Source Emission Reduction Plan (SERP) in the event an air pollution alert, warning, or emergency episode, due to high formation of ozone, is declared in the Portland area by the Department.

8. Pursuant to 40 CFR Part 82, Subpart E; The Labeling of Products Using Ozone-depleting substances, Condition 8. is established because the permittee currently uses the following ozone depleting chemicals:

<u>Ozone-depleting substance</u>	<u>Class</u>	<u>Replacement Chemical</u>
CFC-12	I	R-123 or R-134A
HCFC-22	II	No plans yet
HCFC-123	II	No plans yet
Halon 1211	II	No plans yet
Halon 1301	II	No plans yet

Emission Unit Specific Limits and Standards

9. The visible and grain loading standards of this condition apply to any single air contaminant discharge point to the atmosphere that originated from the fuel combustion sources. Which means these standards are applicable to each and every stack of the EU2 and EU3 boilers.

10. The "Operation & Maintenance" requirements of condition 10. are applicable only to PCD1, the VOC wet scrubber. This condition effectively replaces the existing Highest and Best condition in ACDP, pursuant to OAR 340-28-600 (2)(e) and 340-28-620. This O&M condition focuses on the source-specific maintenance and work practice requirements for PCD1 that are deemed appropriate for the Intel specific PCD1 operations.

Operating parameters that influence the (PCD1) scrubber VOC removal efficiency include the air exhaust from FAB4 (air inlet to PCD1), its (PCD inlet) VOCs concentration, and the scrubber water flow rate. The PCD1 inlet air flow and its VOC concentration are basically dictated by the production, and these are not the appropriate control parameters to be regulated as the permit conditions. The water flow rate is the design control parameter suited for the permit O&M requirements. The VOC removal efficiency varies with respect the water flow rate, and the optimum water flow rate is yet to be determined through source test. The PCD1 design predicts the acetone (to be de-listed) removal rate of 90% or greater. The removal rates of other water soluble VOCs would be slightly less.

Emission Limits and Standards Applicable to Insignificant Activities

11. The grain loading standard established in Condition 11.a. applies to any single (non-fugitive) air contaminant discharge point (stack) to the atmosphere that originated from non-fuel burning sources which include "categorical" and non-categorical "aggregate" insignificant activities.

The 20% opacity limit of Condition 11.b. is applicable to fugitive emission sources as well as the stack emission sources identified as the insignificant activities.

Recently adopted the paint spray and architectural coating rules (11.c.) are applicable to all permitted sources located inside the Portland ozone non-attainment area.

PLANT SITE EMISSION LIMITS

12. 12.a. EU1 (VOC) PSEL

ANNUAL PSEL: The Aloha campus excluding D1 (EU1.2) was constructed during 1976 through 1978, and the facility was retroactively assigned an emission limit (PSEL) equal to the 1978 capacity to emit (190 tons VOC per year) in the first Department issued Air Contaminant Discharge Permit. This baseline emission rate of 190 tons of VOC per year is also the permittee's current PSEL. It also serves as the stationary source EU1.1 (FAB4 & FAB5) maximum capacity to emit. A stationary source EU1.2 (D1) currently under (on-going) expansion was recognized under the previously issued ACDP. The D1 building has the maximum emission capacity of 53 tons/yr, and it is the EU1.2's maximum capacity recognized in this permit.

The baseline PSEL of 190 tons/yr has been and continues to comprise a cap on permittee's plant wide actual emissions, and it shall be used as the basis for limiting source's VOC emissions for various physical and operational changes that are permitted and contemplated by this permit. This means for the purpose of determining applicability of (major) New Source Review (NSR) or Prevention of Significant Deterioration (PSD), OAR 340-28-1900 through 340-28-2000, the baseline capacity of 190 tons of VOCs per year is the starting point. Accumulative VOC emission increases/decreases which result in a net (actual) emission increase greater than the Significant Emission Rate (40 tons/yr) would trigger the NSR; and the BACT/LAER review would be imposed on the stationary source that causes the increase. Any increases less than SER but above the PSEL of 190 tons/yr, no matter how small, will trigger the permit modification process.

EU1 Baseline Capacity = EU1 Current PSEL = 190 tons/yr.

WEEKLY PSEL: Pursuant to OAR 340-28-1020 (2), the short term PSEL established in this permit is the weekly PSEL. The weekly limit was determined to be most compatible with source operations.

Intel normally operates their production lines continuously for about 5 to 7 days. Chemicals applied at the production lines have uniform solvent content (% VOC) that does not fluctuate during the continuous weekly operations. The level of VOC emission would be proportional to the production rate. The weekly emission closely reflect the sum of their daily emissions which are evenly distributed. In the last ACDP renewal, the weekly VOC PSEL was set at 8840

tons/wk. The 8.0 tons weekly PSEL reflects the maximum weekly production rate extrapolated from the emission monitoring conducted from 6/28/92 to 8/29/92 (ACDP data); and it is retained in this permit.

HISTORY OF CHANGE TO VOC (EU1) PSEL: There have been no Department approved VOC (EU1) PSEL increases or decreases between the baseline year (1978) and this permit (1995). The current EU1 PSEL is set equal to the baseline capacity of 190 tons/yr.

12.b. Boilers (EU2 & EU3) PSELS

BASELINE PSELS for EU2: The baseline boiler PSELS were established based on the fuel usage of 399,000 gallons of diesel. For the purpose of assigning diesel fuel usage among the baseline EU2 boilers, the capacity ratio of each boiler was used (see attached detail sheet A6). Note only the total fuel usage affects the emission calculation. The fuel combustion products (criteria pollutants) generated (tons/yr) based on the fuel usage of 399,000 gallons of diesel are summarized below:

<u>PM₁₀</u>	<u>SO₂</u>	<u>NO_x</u>	<u>CO</u>	<u>VOC</u>
0.4	14.2	4.0	1.0	0.1

CURRENT PSEL for EU2: Intel is committed to fueling these boilers with natural gas only. The short-term PSELS are based on EU2's maximum fuel capacity. And based on proposed natural gas usage the estimated annual EU2 emissions (tons/yr) are:

<u>PM₁₀</u>	<u>SO₂</u>	<u>NO_x</u>	<u>CO</u>	<u>VOC</u>
1.15	0.25	9.55	2.01	0.36

BASELINE PSEL for EU3: All existing and planned EU3 boilers were/would be constructed after 1978, and therefore the baseline PSEL for EU3 is set equal to zero.

CURRENT PSEL for EU3: All EU3 boilers are capable of burning natural gas only. The short-term PSELS are based on EU3's maximum fuel capacity. And based on forecasted natural gas consumption the estimated annual EU3 emissions (tons/yr) are:

<u>PM₁₀</u>	<u>SO₂</u>	<u>NO_x</u>	<u>CO</u>	<u>VOC</u>
5.21	0.99	11.97	29.94	1.06

History of changes to the EU2/EU3 boilers' annual PSEL

The ACDP addendum 1 issued on 3/7/89 increased the SO₂ PSEL to 16.4 tons/yr from the baseline rate of 14.2 tons/yr. The EPA AP42 emissions factors for boilers have been updated, and this permit reflects updated AP42 boiler emission factors. The EU2 and EU3 boilers' baseline PSELs are reconstructed to reflect these new AP42 emission factors.

Thirteen additional boilers (not counting the electric EU2.8 boiler) have been installed since the baseline year. In this permit, Intel forfeited EU2 boilers' capacity to burn oil and all boilers are now committed to burning natural gas only.

Since the baseline year, a combined capacity of all EU2 and EU3 boilers have increased by almost an eight fold from 22 to 166 million btu/hr. However, using only the natural gas and retrofitting all D1 boilers with LowNO_x burners would minimize the over-all increases, and actually reduces the boiler SO₂ emissions.

Based on the proposed fuel usage (see attachment A6), the proposed EU2 & EU3 boilers' PSELs are estimated below. The increase in emission of each pollutant is less than the Significant Emission Rate (SER) as defined in OAR 340-20-225 (25). All particulates emitted from the boilers are regarded as PM₁₀ for the permitting purpose. Also note the SO₂ PSEL has actually decreased since the baseline while the capacity went up by almost an eight fold. All units are expressed in tons per year:

<u>Pollutant</u>	<u>Baseline</u>	<u>PSEL</u>	<u>Increase</u>	<u>SER</u>
PM ₁₀	0.4	6.4	6.0	15
SO ₂	14.2	1.3	-12.9	40
NO _x	4.0	21.6	17.6	40
CO	1.0	32.0	31.0	100
VOC	0.1	1.5	1.4	40

EU2/EU3 Short-term PSELs

Oregon's PSEL rules indicate the short-term PSEL (averaging period) be consistent with the ambient standards unless such practice is incompatible with source operation. The short-term ambient standards for criteria pollutants are expressed in term of hourly to 24-hour average.

Intel operates a total of 18 boilers on natural gas, in a non-attainment area for ozone and carbon monoxide, and the combined annual emissions (PSEL) total 1.5 tons of VOCs and 32 tons of CO; which are considered insignificant.

The EU2/EU3 PSEL is basically a product of natural gas usage and the AP42 emission factor, in which the gas usage is the actual limiting factor. The short-term (monthly) PSEL for the EU2/EU3 boilers is based on the maximum (rated) hourly capacity multiplied by 24 hrs/day and 31 days/month; the short-term PSEL in this permit can be expressed in either monthly or daily form, and they would actually represent the same limit. It would be theoretically not possible for boilers to operate beyond their maximum capacity. In actual practice, each boiler is normally operated well below its rated capacity.

The gas usage is the only varying parameter used to determine compliance with the PSEL, and the monthly natural gas usage is obtained from the natural gas supplier's monthly billings. Given the size of the boiler emissions, and considering the fact that short-term limits reflect the maximum combined capacity of all boilers, the monthly (PSEL) averaging is determined to be most compatible for the EU2/EU3 boilers operations. The monthly PSELs reflecting the EU2/EU3 boilers' maximum capacities are summarized in the emissions detail sheets.

13. The aggregate limits for insignificant activities established in this Condition reflect OAR 340-28-110 (5); which sets the aggregate Particulate limit at 1.0 tons per year and the aggregate HAP limit at 2.5 tons per year, pursuant to OAR 340-28-1060(2). This condition basically parrots the rule requirements (OAR 340-28-110(5)) that a total combined emissions from all "aggregate insignificant activities" cannot exceed the aggregate limits for each of the regulated pollutants (Particulates & HAPs) identified:

Description of Current insignificant activities	Regulated Air Pollutants	Estimated Emissions (tons/yr)
Baghouses PCD3 & PCD4 for wafer grinding operations	Particulates	0.2
Natural gas combustion of EU2 & EU3 boilers	Organic HAPs	< 0.2
Process scrubbers, Implant sources, etc.	Inorganic HAPs	0.6

This condition does not intend to limit "aggregate insignificant activities" to only those currently identified in the permit application. For same reason the permittee is free to add more categorical insignificant activities to their existing list (identified in the permit application). The permittee can add more insignificant activities to their existing list, even after the permit is issued, provided that the aggregate limits established in the permit (or rules) are not exceeded. The monitoring protocol for the aggregate insignificant activities requires the permittee to report semi-annually of the changed status (if any), at which time the status change will undergo further Department scrutiny.

Aggregate Particulate emissions: The only other criteria pollutant, other than VOCs, generated from EU1 is particulate and all particulate emissions from EU1 are included in the "aggregate insignificant emissions". No silicon crystals are grown at the Aloha campus. Intel purchases thinly sliced wafers (size varies) with one side having a mirror finished surface (chemically etched & polished). The only silicon-particulate generating process performed at the facility is grinding unpolished side of wafer.

There are two baghouses (PCD3 & PCD4, each with 99.9% control efficiency), located on the south side of FAB4 building, controlling the silicon particulate emissions. The particulate emitted to the atmosphere from these baghouses total about 0.02 tons/yr, and these emissions are included in the "aggregate insignificant emissions".

<u>EU1</u>	<u>PCD ID</u>	<u>Yr installed</u>	<u>Flow (acfm)</u>	<u>Eff. (%)</u>
FAB4	PCD3	1982	2,900	99.9
FAB4	PCD4	1982	2,900	99.9

Aggregate Organic HAP emissions: Organic HAPs emissions from the EU2 and EU3 boilers were estimated using the emission factors published in the OAQPS document; EPA-450/2-90-011, second edition, October 1990.

EF C₆H₆ = 4% of total VOCs (0.04 x 2.8 lbs/10⁶ ft³ ng.)
 EF CH₂O = 88.12 lbs per 10¹² btu heat input for EU2 boilers
 EF CH₂O = 997 lbs per 10¹² btu heat input for EU3 boilers

Combined HAPs emissions due to EU2 and EU3 natural gas combustion total less than 0.2 tons/yr.

E, Benzene (C₆H₆) ≈ 0.04 tons/yr
 E, Formaldehyde (CH₂O) ≈ 0.09 tons/yr

Aggregate Inorganic HAP emissions: Inorganic HAPs emissions are summarized in the Table below. Inorganic HAPs are emitted to atmosphere through process scrubbers (PCDs), and emissions from these "high efficiency" PCDs are very small as noted below:

HAPs	DESCRIPTION OF ACTIVITIES	ESTIMATE (tons/yr)
Arsenic compounds	Doping, parts cleaning	trace
Chromium compounds	Backside coating, etch	trace
Ethyl benzene	Negative litho process	trace
Ethylene glycol	Various dips, cleans & eq. cooling	trace
Phosphine	Implant source	0.02
Phosphorus	Implant source	trace
Hydrofluoric acid	PCD2.1/2.2, PCD5, PCD6, PCD7, PCD8, PCD9, PCD11, PCD19/20	0.09
Hydrochloric acid	PCD2.1/2.2, PCD5, PCD6, PCD7, PCD8, PCD9, PCD11, PCD16, PCD17, PCD19/20	0.40
Chlorine	PCD2.1/2.2, PCD7, PCD8, PCD9, PCD19/20	0.09
Total		0.6

As noted above, controlled emissions of inorganic compounds (mostly acids) from numerous high efficiency scrubbers are small. Most of inorganic HAPs originate from the acid baths, and vapors from the acid baths are routed to wet scrubbers (PCDs) as listed in the following Table. Because acids have strong affinity for water, the dilute acid bath would not release significant amount of acids to begin with⁸⁹

and when such emission is further controlled by wet scrubbers, the acid emissions to the atmosphere are virtually eliminated. This partly explains Intel's ability to remain a minor source of (inorganic) HAPs. The following Table lists all existing PCDs for non-VOC HAPs and their key design parameters:

- Inorganic HAPs Emission Control Devices -

Pollution Control Equipment(s)	PCD ID	Design Parameters			Year Installed
		Gas Flow (acfm)	Pre. drop (in. water)	Water Flow (gpm)	
Wet Scrubber/ Thermal decomposition units (Delatech 857)	PCD2.1	200 scfm each	0.25	2.5	1993
	PCD2.2		0.25	2.5	1993
Horizontal Wet Scrubbers (FAB4 SCO #1 - #5)	PCD5	19,050	2.5	120	1974
	PCD6	19,050	2.5	120	1974
	PCD7	19,050	2.5	120	1974
	PCD8	20,000	2.5	120	1988
	PCD9	5,000	2.5	50	1988
Vertical Acid Scrubbers (FAB5 SCO #1 - #4)	PCD10	19,000	< 3	20	1974
	PCD11	"	< 3	20	1974
	PCD12	"	< 3	20	1974
	PCD13	"	< 3	20	1974
HPH Horiz. Scrubber (FAB5 SCO #5)	PCD14	34,000	0.5	30	1993
D1 Horizontal Wet Scrubbers	PCD15	60,000 scfm each	2	500	1992
	PCD16		2	586	1993
	PCD17		2	586	1993
	PCD18		2	500	1992
	PCD19/ 20	10,000	1.25	100	1992
	PCD21	85,000	2.6	341	1994
	PCD22	85,000	2.6	341	1994
	PCD23	29,000	2.6	356	1994

SOURCE-SPECIFIC CONDITIONS

This "Source-specific Conditions" section of this permit is reserved for special conditions/requirements applicable to the permittee that are reflective of the source uniqueness. This section is further divided into three subsections:

- | <u>Condition No.</u> | <u>Subsection</u> |
|----------------------|---|
| 14. - 15. | Source-specific RACT Conditions |
| 16. - 18. | Pollution Prevention and Pre-approved changes |
| 19. | (Synthetic Minor) HAP Emission Limits |

14. REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT)

Applicability: Pursuant to Oregon Administrative Rules (OAR) 340-22-104 (5), this permit proposes a source-specific Reasonably Available Control Technology (RACT) standard for affected operations at the Intel Aloha campus. The proposed source-specific RACT standards need not be approved by the Oregon Environmental Quality Commission (EQC) prior to EPA approval since this source-specific requirement itself is inherently a part of the State Implementation Plan (SIP) VOC rules.

Procedure: The RACT portion of this permit issuance followed the procedural requirements of 40 CFR Part 51.102; which included posting of public notice in the newspaper on June 8, 1995, followed by conducting a public hearing on July 13, 1995. In addition, the RACT portion of this permit was posted on the secretary of state notice to conform with the (state) source-specific SIP revision process. The public notice/hearing process has been completed, and therefore the proposed RACT standards are being submitted to EPA (Region X Office) for their review and approval. The proposed RACT standards in this permit are not final, and they are subject to change pending EPA action. Once EPA approves the proposed RACT standards, the permittee has one year from the date of EPA approval to comply with the applicable RACT requirements.

General background information: The Oregon SIP VOC Rules (Division 22) include several categorical RACT standards applicable to specific categorical sources residing inside the designated nonattainment area. Division-22 also includes a provision which requires other non-categorical 91

"affected sources*" to comply with the case by case (source specific) RACT standard(s) established by the Department. Intel is the only affected semiconductor manufacturer currently operating in Oregon that became subject to a source-specific RACT determination.

Most RACT determinations are based on EPA Control Technology Guidelines (CTG), but there is no CTG developed for semiconductor industry. However, similar source-specific RACT determinations have been made by the other regulatory agencies (outside Oregon), and this permit uses some of their assessments (for comparative purpose only) as a guideline to assess source-specific RACT standard for certain Intel operations. Subsequently, the engineering/technical evaluation coupled with the cost analysis dictated the RACT standards in this permit.

*"Affected sources" are those stationary sources operating inside nonattainment areas for which no categorical RACT requirements exist and which have the potential emissions before add-on controls over 100 tons of VOC per year.

The Portland area attainment status: The Portland area is currently designated as a marginal nonattainment area for ozone. However, one of the criteria for reaching the attainment status is to not exceed the national ambient air quality standard for ozone (0.125 ppm) more than once per year on average over a three year period. For past three years, Portland has been in compliance with the EPA standard:

<u>Year (Date)</u>	<u># Exceedances</u>	<u>Conc. (ppm)</u>
1991 (7/02)	1	0.129
1992 (8/17)	1	0.126
1993	0	< 0.125

The Department has also met the EPA deadline (November '93) for the submittal of a plan to maintain compliance with the ambient ozone standard. The (draft) plan does not amend the existing RACT regulations.

The latest Department's emission inventory taken during the 1990 Ozone season indicates the industrial emissions accounted for about 6 percent of total Portland area VOC emissions. The VOC emissions in the following years follow the same trend and the percentage would be very similar:

<u>Source Type</u>	<u>VOC Emissions lbs/day</u>	<u>Percent (%)</u>
Stationary Point Sources	35,913	6
Stationary Area Sources	158,311	26
Biogenic Sources	91,462	15
Non-Road Mobile Sources	87,079	14
On-Road Mobile Sources	<u>239,338</u>	39
Total within Portland AQMA	612,103	

No emission increase is proposed with the RACT assessment. In fact the proposed RACT standard will (legally) prevent Intel from increasing the level of pollutant emitted per unit (wafer) production. This performance specific RACT standard combined with the emission cap (PSEL) established in this permit represent one of the most effective environmental protective measure available, which can only help maintain the Portland attainment status.

RACT assessment (screening) overview

Semiconductor manufacturing processes performed at the Aloha campus were initially divided into four (4) distinct categories of operations; out of which only two (▶) types of operations are determined to be suitable candidates for specific RACT assessment in this permit:

- VOC storage, handling, and distribution
- VOC waste collection and disposal
- ▶ ~~Solvent-cleaning stations~~
- ▶ Photoresist operations

- VOC storage and handling: Drums (< 55 gal.) and smaller carboys are used to deliver organic chemicals to the process area through a closed fill (hard piped) system, during which displaced vapors (VOCs) are fed back to the waste bulk (under-ground) storage tanks. Solvents in drums are pumped through hard piping to a process unit where it is quantitatively dispensed directly to the process equipment.

- VOC Waste collection/disposal: Any excess and/or spent materials from the process equipment are immediately captured and drained (piped) to the waste storage tank.

The over-all controls provided in these first two categories of Intel specific operations exceed RACT; A similar solvent distribution/collection system (>95% efficiency) was determined to be BACT by the California Air Resource Board (CARB). This high degree of collection efficiency provided by the enclosed solvent distribution/collection system is

one of the contributing factors that over 90% of all plant site VOC emissions come from the photoresist processes, and most of the remaining (10%) portion of VOC emissions is generated from the solvent cleaning stations. By design, VOC emissions from these tightly controlled solvent distribution/collection operations are insignificant. This is one of the deciding factors not to establish a separate individual RACT standard for these solvent distribution/collection operations: The level of control provided already exceeds what the RACT would require, and a further technical/economical review would become an academic exercises at best. Furthermore, these operations are actually a (supportive) part of the (main) photoresist activities, and it is more appropriate to regulate these operations under the photoresist RACT standard.

It must be noted that omission (on paper) of these solvent/waste distribution/collection operations from the individual RACT assessment does not mean these operations are being exempted from the RACT review. Instead the RACT standard set forth in this permit for the (main) photoresist operation extends to the solvent distribution/collection operations, because they are essentially an auxiliary part of the main photoresist operations. Of related topic, the photoresist RACT standard would also apply to VOC emissions from the solvent cleaning stations, even though a separate RACT work-performance standard (FBR) is established for the solvent cleaning stations.

The RACT review in this permit focuses on the latter two (►) categories of operations where the environment impact would be the greatest. In addition to the (main) photoresist RACT standard, the permittee is required to provide an additional (FBR) performance measure at the solvent cleaning stations.

In summary, the solvent distribution/collection activities support the photoresist operations, and these activities are actually considered a part of the photoresist operations and it will be regulated as such. Instead of a separate RACT standard for these auxiliary activities, a universal RACT standard, applicable to all phase of semiconductor manufacturing, better serves the Department/permittee from the enforcement/practical stand point. The FBR control required at the solvent cleaning stations serves as an additional layer of environment protection.

► RACT Standard for Solvent Cleaning Stations

Solvent cleaning operations at Intel are executed on a small scale with open area (top dimension) ranging from 2 to 4

ft². Size-wise, Intel's solvent cleaning/degreasing stations don't even come close to industrial size cold cleaners, open-top vapor degreasers, or conveyORIZED degreasers. However, the solvent cleaning operations, regardless of their size, are functionally similar. They all use solvents in either vapor or liquid phase to remove impurities from the product surface. The operational goal of any cleaner or degreaser is common, and this is the rationale for applying the CTG developed for "conventional" organic solvent cleaners/degreasers to Intel's "small scale" solvent cleaning operations.

Recommended CTG standards in general consist of proper operating procedures, and/or additional control devices. The CTG document (EPA-450/3-78-120) recommends conveyORIZED degreasers smaller than 21.5 ft² of air/vapor interface; and open-top vapor degreasers smaller than 10.8 ft² of open area be exempted from having to add a major control device such as refrigeration/condenser. Pursuant to the guidelines set forth in the referenced CTG, the RACT assessment in this permit is therefore based on proper operational procedures.

The most common and effective operational procedures applied to the cleaning/degreasing operations include controlled Freeboard Ratio (FBR) and covers. FBR is defined as the freeboard height (depth) divided by the width (not length) of the air/solvent interface area. Higher FBR reduces diffusional (VOC) losses by lessening the effect of (ambient) air current on the air/solvent interface zone. Covers obviously discourage natural draft and reduce solvent evaporative losses.

Approximately 90% control efficiency can be achieved with a 0.7 FBR and covers for the sinks. The test results compiled in "Air Pollution Engineering Manual (1992, p. 352-357) further supports the effectiveness of the FBR control.

Table 1 (Attachment A9) lists various control equipments for cleaners and their control efficiencies taken from the CARB report. Intel also furnished historical source test data (Attachments A10 through A13) to characterize VOC evaporative losses from their operational area during parts cleaning operations.

In establishing the RACT standards for Intel's solvent cleaning stations, a further observation (of source uniqueness) is necessary. There are a few solvent cleaning stations at Intel that are not conventional in a sense that these stations resemble a typical laboratory (or kitchen) sink: It consists of a sink and over-head hood with built-in

in fan, a solvent faucet, and a typical drain system. The parts are cleaned in running solvents (from the faucet) and the waste solvents are immediately drained (piped to the waste storage vault). If there is no solvent left standing in the sink, the FBR/cover control requirements simply do not apply. Therefore the FBR control is applicable only when parts are cleaned by immersion. The following RACT performance standards (permit language) are appropriated for Intel's solvent cleaning operations:

- The freeboard ratio must be equal to or greater than 0.7 if parts are cleaned by immersion.
- A cover must be provided during idle periods if the sink contains any free standing solvents.
- The cleaners are exempt from these RACT requirements if they use non-VOC solvents as defined in OAR 340-22-100.

► RACT Standard for Photoresist Operations

Reiterating, the photoresist operation is the single largest source of VOC emissions at the Aloha campus, generating approximately 90 percent of total plant site VOC emissions. Traditionally the photoresist processes are categorized into two sub-categories termed "positive" and "negative" (terms used throughout this review report). Both the positive and negative photoresist processes use solvents in their spin coater operations, but only the negative photoresist process uses solvents in the development stage. Historical data confirms the negative process emits a significantly greater amount of VOCs than the positive process.

The (California) Bay Area Air Quality Management District (BAAQMD) has designated the positive process as RACT. Because, in terms of VOC emissions, the positive process translates to the equivalent of 90% abatement for the negative process. In other words, the RACT control for the negative process is either providing the 90% equivalent emission control or a conversion of the negative to the positive system.

The existing photoresist machines at the Aloha campus are all based on the positive technology, except for one negative unit. VOC emissions from the negative process are approximately 11 tons/yr (tpy), and the cost of controlling this emissions to the level of the positive technology (1.1 tpy) was shown to be beyond the cost acceptable for a RACT cost increment. The control cost of thermal destruction was also estimated to run well over \$10,000/ton/yr.

Following the BAAQMD's RACT determination, the alternative (to thermal control) is the conversion. However, a straight conversion from negative to positive was also determined to be not cost effective for Intel. The cost of conversion would run into well over \$10,000/ton/yr (based on a direct quote from the equipment vendor). The Department generally acknowledges the control cost greater than \$10,000/ton/yr to be excessive for RACT. From the cost stand point, the permittee (Intel) is exempt from having to provide the RACT level (equivalent to their positive process) control to their negative system. And since the positive system itself is considered equivalent to RACT, the source-specific RACT assessment for the photoresist operations could prematurely end at this point. The permit RACT review for Intel went a step beyond the straight conversion, and the other control alternatives are explored on a plant wide basis:

First of all, recognize the positive photoresist process units significantly outnumber "one and only" negative unit at the Aloha campus. This opens up the possibility of over-controlling (tweaking, P2, etc.) each and every positive units (already considered RACT equivalent) to a degree such that it would not be considered cost excessive. Over-controlling "many" positive units even to a small degree; beyond what the RACT would require, to the extent that is equal to or greater than the under-controlled level from "one and only" negative unit; could easily yield the net result being equal to or greater than the RACT equivalent control across the entire plant. For instance, providing numeric value to a given example, over-controlling VOC emissions from each and every 100 positive units by 0.1 tons (total 10 tons) would more than offset the total under-controlled amount of 5 tons from one (1) negative unit by 2 to 1.

This is accomplished by, in lieu of having separate standards for the positive and the negative, establishing a common universal standard for both the positive and negative system. This universal RACT standard, which is based on the (cleaner) positive technology, is also applicable to the negative process performed at the Aloha campus. Theoretically, the permittee can only comply with this universal RACT standard by providing over-control at the positive units. This basically illustrates the Bubble (OAR 340-28-1030) concept.

In addition to the Bubble concept, the universal RACT standard serves another purpose. Consider the dynamic nature of the semiconductor industry. Unlike traditional smoke stack industries, the semiconductor technology, and the manufacturing process which it is based on, rapidly

changes with respect to time. The manufacturing processes may no longer be based on so-called the positive/negative photoresist technology. From the enforcement perspective, it is highly desirable to have a definite regulatory control over Intel's future operations, as well as their existing operations.

The universal RACT standard proposed in this permit is applicable to all existing positive and negative systems, as well as all future wafer manufacturing processes, regardless of the technology a new system may rely on. The proposed RACT standard will encourage Intel to promote the pollution prevention, such as incorporation of necessary process equipment design/changes and chemical substitution, during the research and development stage. Furthermore, this universal RACT standard eliminates the need to separately monitor the chemical usage (emissions) of the positive from the negative. This greatly simplifies the chemical mass balance (enforcement tool) needed to determine permittee's compliance status with respect to the proposed RACT standard.

Intel's historical emission and production data were evaluated and the appropriate time period that accurately represents Intel specific positive photoresist technology was identified. The year selected is 1985 because it was the year the positive process at the Aloha campus incorporated the (source-specific) EBR and cuprinse steps. These unique EBR/cuprinse designs significantly reduced the VOCs emissions from the traditional (those without EBR/cuprinse) positive photoresist process. The positive process units at the Aloha campus continue to utilize these source-specific EBR/cuprinse technologies.

<u>VOC emissions</u>	<u>Production</u>
59.97 tons	181,300 normalized 8" (inch) wafers

Chemical and production specific information are available at the plant site for Department/EPA inspections. Based on the above emission data from the Intel specific positive system with the EBR/cuprinse design, the universal source-specific RACT standard applicable to Intel's entire spectrum of wafer manufacturing processes is:

2×10^{-4} lbs VOC per cm^2 Wafer Processed

- The permittee must achieve real reductions in actual VOC emissions consistent with the proposed RACT level

(2×10^{-4} lbs VOC/cm²) of control. The proposed RACT standard, directly tied to actual production rate, provides an assurance that source cannot utilize non-production or equipment downtime credits in their emission calculations to show compliance with the VOC PSEL. A proposed RACT is essentially a performance standard independent of PSEL, and it directly limits the amount (lbs) of VOC emitted per specific amount (cm²) of wafer production.

- The proposed RACT standard applicable to the current technology employed by Intel extends to all future technologies contemplated and adopted by Intel and utilized at the Aloha campus.

RACT Averaging Time

The short term PSEL proposed in this permit is weekly and it was determined to be most compatible with the source operations, pursuant to OAR 340-28-1020(2). The RACT averaging period needs to be consistent with the VOC PSEL short-term monitoring period and is therefore based on weekly also.

The RACT compliance determination is essentially based on the wafer start (processed; not the final number of finished product) and CMB. The ratio of the amount (lbs) of VOC emitted in a week period is taken against the amount (cm²) of wafer start in that same week period. The result is measured against the permitted RACT standard to determine the permittee's compliance status.

The wafer production lines continuously operate for about 5 to 7 days. Raw chemicals/solvents used in wafer production have uniform VOC content (%), and the production rate (and thus VOC emission rate) remains consistent throughout a given weekly production cycle. This means weekly emission is essentially the sum of daily (hourly) emissions, if such (hourly/daily) measurement is viable. A weekly period is determined to be the shortest practical period most compatible with the source operations, and thus the averaging period selected in this permit.

Summary: The RACT standard established in this permit (#14.a.) for the photoresist operations is actually the universal (plant-wide) standard applicable to the entire spectrum of semi-conductor manufacturing performed at the Intel Aloha campus. The Free Board Ratio (FBR) established in this permit (#14.b.) is applicable only to the solvent

cleaning stations, and it essentially serves as a built-in performance standard that further encourages (additional layer of) emission control from the permittee. Condition 14.c. is to be used as a vehicle to trigger the RACT standards proposed in Conditions 14.a. and 14.b. once the Department receives an approval from EPA.

15. Condition 15. provides conditional compliance schedule, a mechanism necessary to establish alternative RACT controls acceptable to (or recommended by) EPA, to be used in the event the proposed standards are disapproved. Note that this conditional compliance schedule is triggered only if the proposed standards in 14. are disapproved by EPA.

POLLUTION PREVENTION AND PRE-APPROVED CHANGES

Permit conditions 16. through 18. represent an attempt to incorporate pollution prevention conditions in the Title-V operating permit and provide the permittee operating flexibility to meet pollution prevention goals and objectives by pre-approving a narrowly defined set of changes. The Department views this as a trial project and an opportunity for the Department to gain a wealth of information on the viability and effectiveness of including pollution prevention requirements in a Title-V operating permit.

16. Pollution Prevention

The pollution prevention condition requires the permittee to develop and implement a pollution prevention program and submit reports on implementation of the program.

16.a. Implementation of the program, as established in item 16.a., is fairly short and designed to implement the pollution prevention quickly upon issuance of this permit.

16.b. The program consists of at minimum the following program elements:

16.b.i. A description of the process the permittee will use to introduce pollution prevention into their decision-making procedures;

16.b.ii. a partnership/agreement the permittee will establish with its material suppliers to minimize hazardous air pollutants and volatile organic compounds from the raw materials and products;

16.b.iii. a partnership/agreement the permittee will establish with its equipment vendors to minimize hazardous air pollutants and volatile organic compounds using pollution prevention in equipment design;

16.b.iv. development of a data collection system appropriate for evaluating pollution prevention effectiveness;

16.b.v. development of an employee training program to promote pollution prevention at the permitted facility; and

16.b.vi. a statement of commitment to pollution prevention at the permitted facility.

16.c. Item c. is a provision for changing elements in the pollution prevention program, differentiating between minor changes that can be made immediately and reported in the annual report and major changes which require 30 day notification prior to change and a demonstration of need for the change. A major change is eliminating a program element, such as the employee training program. Modification of a program element, such as a change to the training program, is considered a minor modification.

16.d. The permittee is required to develop a detailed annual report that outlines progress made during the preceding calendar year. As this detailed report will contain market-sensitive information, it will be kept at the site and made available to Department representatives for inspection at the facility. The permittee shall also submit an executive summary of the detailed annual report. The annual report during the last year of this permit shall contain a summary of the project and a self-evaluation of the effectiveness of the program.

17. Pre-approved Changes

Through pre-approval of a narrowly defined set of changes, Intel and Oregon DEQ will expedite the administrative procedural requirements of minor new source review (OAR 340-28-2270). These pre-approvals do not involve increase in emissions or major modifications, and definitely do not represent an exemption to any applicable requirement. These conditions are drafted to be fully protective of environment and to promote pollution prevention.

17.a. Item a. states the approved changes only extends to VOC emitting activities at stationary sources EU1.1 and EU1.2. The only other remaining stationary source (EU1.3) at EU1 consists of two office buildings which are listed in the permit for identification purpose only.

17.b. Item b. strictly prohibits the permittee from adding a new stationary source.

17.c. Item c. states all new or modified activities must continue to comply with the VOC PSEL. This condition also binds the permittee to do the pollution prevention as specified Condition 16.

17.d. Item d. prohibits addition of a new Pollution Control Device, and it also prohibits the permittee from making changes to existing VOC control devices (PCD1 & PCD26) such that the performance (control efficiency) would be degraded.

17.e. Item e. states all new or modified activities must continue to comply with the source-specific RACT standard.

17.f. Item f. states the permittee cannot deviate from the existing compliance monitoring requirements established for the VOC PSEL and RACT Conditions.

17.g. On top of all the restrictive criteria specified in items a. through f., item g. is established to further insure that no new applicable requirement is triggered.

17.h. Item h. directs the permittee to the appropriate monitoring and reporting that they must abide by.

18. This condition is a sunset provision which conveys that the pollution prevention (16.) and pre-approval (17.) conditions will expire at the expiration date of this permit unless there is a mutual agreement between the permittee and the Department to continue.

19. AGGREGATE HAP EMISSION LIMIT

The aggregate combined Hazardous Air Pollutants (HAPs) limit of 10 tons/yr for each organic and inorganic HAPs set forth in this section comprises a cap on the permittee's total HAPs emissions. It limits the permittee's potential to emit and categorizes the permittee as a minor HAP source. As long as the permittee operates within the HAP limits set forth in this section, the permittee retains the minor HAP₁₀₂

source status and the provisions set forth in OAR 340-32-300 through 340-32-4500 remain not applicable.

The minor HAP source status was initially determined from the permit application (specific chemical usage is confidential and all records are kept at the plant site and are made available to the Department/EPA representative). A review indicates the HAP minor source status was determined (conservatively) by using the HAP usage data and not the emission data for certain chemicals. Toxic substance usage data are provided in Attachment 14 (A14).

The emission cap set forth in this section is actually more stringent than what the applicable rule requires: OAR 340-32-120 defines a major source as one that has the potential to emit, considering control, in the aggregate, 10 tons/yr or more of any individual HAP or 25 tons/yr or more of any combination of HAPs. The 10 tons/yr emission cap in this permit applies to emissions of a total combined organic HAPs, and similarly a separate 10 tons/yr emission cap applies to inorganic HAPs emissions.

The individual organic or inorganic HAP emission can never exceed 10 tons/yr since the combined emissions of either organic or inorganic HAPs must remain below the 10 tons/yr cap. Therefore the permit compliance demonstration requirements do not require monitoring of individual HAPs. (This is an excellent trade-off, more stringent limit for easy of monitoring) Only the aggregate amount is needed to determine the permittee's compliance status with respect to the 10 tons/yr aggregate limits set forth in this permit.

MONITORING REQUIREMENTS

Monitoring requirements provided in this section are the primary tools used by the permittee and the Department to assess the permittee's compliance status. Monitoring requirements in this section are divided into six (6) parts: Condition 20. specifies the monitoring related to the facility-wide applicable requirements. Condition 21. specifies the monitoring related to those applicable requirements targeted at specific emission unit(s). Condition 22. deals with the monitoring associated with the limits applicable to "insignificant" activities. Condition 23. outlines the compliance determination for the (EU2 & EU3) boiler PSELS. Condition 24. is reserved for the monitoring associated with the VOCs and HAPs PSELS and the source-specific RACT requirements. And lastly Condition 25. identifies monitoring related to the pre-approval condition.

20. "Facility-wide" Monitoring

Before individual monitoring protocol associated with the applicable standard(s) in this section is judged solely by its content, a thorough understanding of what is actually being regulated is necessary, as this influences the level of monitoring related to such activities. Intel is a major source of VOCs emissions. Emissions of other criteria pollutants are generated from natural gas burning boilers. Intel is an insignificant source of particulate/visible emissions. Besides natural gas combustion, the only potential particulate generating processes performed at the Aloha campus is the wafer grinding operations. As discussed extensively (considering the subject of discussion was "insignificant") in item 13. of this review report, the wafer grinding operations are controlled by PCD3 and PCD4 baghouses, and the emissions from these baghouses total about 0.02 tons/yr.

20.a. This Condition establishes the monitoring protocols necessary to determine compliance with respect to the process fugitive dust control requirements set forth in Condition 5.a and the odor/nuisance control requirements set forth in Condition 5.b. Solid materials (mostly wafers) that Intel use in their processes have minimal chance of becoming air borne. The source also has an excellent compliance history (no permit violation nor public complaints to this date).

Monitoring requirements consist of complaint investigations as they occur and the subsequent reporting in the semi-annual report. For example, the Department may request Intel to investigate upon receiving complaints from the public; or Intel may initiate the investigation themselves upon receiving complaints related to referenced permit conditions. The permittee is also subject to the Department and/or EPA inspection, which is another vehicle used to determine the permittee's compliance status with respect to the permit nuisance conditions.

20.b. Reiterating, Intel is an insignificant source of particulate emissions; the only notable particulate emissions come from PCD3 and PCD4 and these baghouses are incapable of emitting particulate matters larger than 250 micron. In addition, natural gas burning boilers are the only potential source of SO₂ emissions. Natural gas burning boilers are simply not capable of emitting SO₂ at a level greater than 1000 ppm. Reflecting such, the permit monitoring basically consists of self-evaluation every six months to ensure that no such equipment have been added.

20.c. This Condition requires the permittee to keep a summary of actions taken during an air emergency episode declared in the Portland area by the Department for ozone.

20.d. This Condition references the monitoring associated with the Labeling of Products Using Ozone-depleting chemicals.

21. "Emission Unit Specific" Monitoring

21.a. The 0.1 gr/scf grain loading and the 20% opacity standards are federally and state enforceable conditions that apply to all fuel burning equipments. These standards therefore apply to all EU2 and EU3 natural gas burning boilers.

Again, the nature and characteristics of an affected emission source must be considered and then reviewed with respect to the intent and (occasionally) history of applicable standards in order to develop a meaningful monitoring requirement. The grain loading and opacity standards cited above were developed in the early seventies in order to regulate the boilers fueled by wood wastes, coal, and heavy residual oils, that are generally operated without any control.

Natural gas is one of the cleanest fuels available, and visible/particulate emissions from natural gas combustion are insignificant when compared to combustion of oil, coal, or wood wastes. Visible emissions, other than heat wave (or condensed water) during cold weather, from natural gas combustion are virtually non-detectable to the human eye. It is safe and reasonable to conclude (assume) that the 20% opacity standard would not be exceeded during natural gas combustion.

Grain loading from natural gas combustion would generate particulates (all considered to be PM_{10}) at a level below the grain loading standard of 0.1 gr/scf, corrected to 12% CO_2 (stoichiometric feed of air). EPA AP42 indicates 12 lbs of particulate is generated from million (10^6) ft^3 of natural gas combustion. In reference to 40 CFR, Part 60, Appendix-A, Method 19; a million ft^3 of natural gas combustion based on stoichiometric feed of air would yield 9.15×10^6 ft^3 of dry flue gases:

$$10^6 \text{ ft}^3 \times (1050 \text{ btu/ft}^3) \times F_d = 9.15 \times 10^6 \text{ dscf}$$

$$\text{where } F_d = 8,710 \text{ dscf/}10^6 \text{ btu}$$

Twelve pounds (12 lbs) of particulates in 9.15×10^6 dscf of flue gases are equivalent to grain loading of about 0.01 gr/scf.

$$\frac{12 \text{ lbs} \times 7000 \text{ gr/lb}}{9.15 \times 10^6 \text{ dscf}} \approx 0.009 \text{ gr/scf} < 0.1 \text{ gr/scf.}$$

Even a conservative EPA AP42 figure of 12 lbs/ 10^6 ft³ indicates the average grain loading from natural gas combustion is less than 10% of the rule standard of 0.1 gr/scf.

In conclusion, as long as the permittee uses natural gas only, the 20% opacity and 0.1 g/scf grain loading standards would be met. The compliance demonstration requirements include necessary monitoring and reporting of type(s) of fuel used and its consumption rate(s). In the event the permittee elect to use fuels other than natural gas (oil for instance), the permit must be opened to incorporate necessary applicable requirements, such as OAR 340-22-010 to 340-22-0250, and to modify compliance demonstration requirements, pursuant to item 21.a.iii.

21.b. Periodic monitoring requirements established in this condition adequately demonstrate the compliance status with respect to the O&M requirements set forth for PCD1. The water pressure drop across the scrubber packing is directly influenced by the water flow rate, and therefore the pressure drop in place of actual water flow rate is an acceptable substitute monitoring parameter. The water flow rate can also be obtained from the pump curve. The key parameter to monitor and record, per this condition, is the changed status of the water flow rates. However, it is expected that once the optimum water flow is determined through a source test, the water flow rate would be kept constant at or above the optimum level.

22. "Insignificant Activities" Monitoring

22.a. The grain loading standard of 0.1 gr/scf (11.a.) and the 20% opacity limit (Condition 11.b) apply to non-fuel burning sources. However, as discussed earlier (see Review #20) the measurable particulate emissions from the Aloha campus total about 0.02 tons annually. The fact that semiconductor manufacturing must be performed inside the clean room environment, a significant amount of capital is spent just to clean the ambient air routed to the process area, is an indication that such operation does not even come close to the particulate/visible emission standards set forth in

this permit. Furthermore, the most, if not all, solvents (VOCs) emitted from the Aloha campus are believed to be colorless, which leads to believe the visible (opacity) emissions would not be a major concern.

Periodic monitoring requirements consist of a visible emission survey once every six month to conform with the semi-annual compliance certification protocol. In addition the source is subject to the Department/EPA inspections, which further ensures the permittee's compliance performance toward the 0.1 gr/scf and 20% opacity standards would be measured and potentially changed if deemed necessary.

22.b. A written certification can be in the form of Material and Safety Data Sheet (MSDS).

22.c. A periodic monitoring requirement for the facility wide limits for insignificant activities consists of an inspection every six month to confirm that no significant change(s) has been made such that the aggregate limits would be exceeded. The permittee is also required to quantify the emissions from insignificant activities once per permit period, preferably at the time of permit renewal.

23. "EU2/EU3 Boilers PSEL" Monitoring

The boiler emissions are calculated based on natural gas usage and the appropriate emission factors. The EU3 boilers are equipped with LowNO_x control, and comparatively EU3 boilers' NO_x emissions are much less than EU2 boilers. See emission detail sheets; attachments A1 through A6.

23.a. The annual emission is determined by multiplying annual fuel usage to appropriate EF listed in the Table. All EFs are the AP42 data, except EU3 boiler's NO_x and CO EFs which are based on manufacturer data, verified by source test.

23.b. The monthly emission is determined by multiplying monthly fuel usage to appropriate EF listed in the Table. The EU2/EU3 boilers' monthly PSELS are based on the sum of each boiler's maximum capacity, and theoretically this maximum capacity can never be exceeded. As long as no physical modification is made to the boilers, the capacity remains the same. In actual practice, all boilers are operated well below their maximum capacity.

23.c. The permittee obtains the natural gas usage from the natural gas supplier's monthly billing. The billing 107

documents the actual natural gas usage between two dates approximately a month apart. For example, Intel receives an invoice on 4/15 for actual usage from 3/3 to 4/5. From this data, the permittee can approximate the amount of natural gas used from the beginning (1st) to the end of the month. For the sole purpose of assessing compliance with respect to the combustion PSELS established in Condition 12.b., this is an acceptable method for calculating the monthly emissions from the EU2/EU3 boilers.

23.d. Pursuant to 40 CFR (§), Subpart Dc, "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units", this condition establishes the daily monitoring (per § 60.48.c (g)) of natural gas usage on EU3 boilers. The sole purpose of the daily monitoring of the EU3 natural gas usage is to meet the NSPS (§ 60.48.c (g)) monitoring requirement.

The permit minimum recordkeeping requirement of 5 years, as specified in Condition 29., more than satisfies the NSPS (per § 60.48.c (i)) recordkeeping requirement of 2 years. This is the reason the less stringent 2-year NSPS recordkeeping requirement is omitted.

24. Monitoring related to "source specific" Applicable Requirements

This condition determines the permittee's compliance status with respect to the VOC PSEL and RACT conditions, and the aggregate HAP limits. They are combined here because certain parameters monitored are shared by the VOC and (organic) HAP PSELS and RACT conditions. The monitoring requirements in this section are specifically written to accommodate the source-specific types of conditions and to reflect source's unique parametric monitoring needs.

Items a., b., and c. determine the annual VOC emissions through chemical mass balance. However, the nature and complexity of Intel's manufacturing processes interfere with the direct monitoring of VOC emissions in a short-term (weekly) basis. The weekly VOC emission monitoring is best accomplished by a combination of direct and indirect measurements.

This permit utilizes the bi-monthly VOC emission factor (EF) calculated based on the actual solvent usage and the actual production figures from the previous two month. The bi-monthly EF will be updated every two month to reflect the most recent process changes. This is needed to compensate for the on-going process changes. Weekly emission is then

estimated by multiplying EF to weekly production output. The proposed VOC weekly emission monitoring, although indirectly measured, is proven to produce consistent and accurate emission data. As shown in Figure-1 (attachment A8), the EF dependent monitoring closely reflect the actual emissions. Furthermore, the actual emission monitoring is not omitted in this permit, but rather it is delayed for a short period (two month) of time.

The VOC monitoring also contains a built-in quality assurance measure. The accuracy of each EF is verified at the end of each monitoring period (2 months) by comparing the EF dependent emissions (2 month sum of item g.) to the actual emissions obtained from the actual bi-monthly solvent monitoring as specified in items a, b, and c.

Item d. establishes the monitoring requirements necessary to verify the permittee's (synthetic) minor HAP source status. Item d. requires a separation of organic HAPs from the inorganic HAPs. Emissions organic HAPs are estimated through chemical mass balance, the same method used to determine VOC emissions. Estimating emissions of inorganic HAPs is a different matter, however, and there are several factors to consider.

As documented in item 13 of this review report, inorganic HAP emissions are well controlled, and the current inorganic HAPs emissions total less than one fourth (2.5 tons/yr) the permitted level of 10 tons/yr. Of related topic, emissions from the aggregate insignificant activities must be included in the HAP emissions calculations, but the permittee needs to quantify emissions from aggregate insignificant activities only once per permit period, as specified in the permit condition 22.b.i.

No simple calculation or emission factor are available for inorganic HAP emissions. The emissions of inorganic HAPs are best estimated through the usage data and the efficiency of control device. The monthly inorganic HAP emissions can be extrapolated from the 1994 (application) emissions/usage data, provided the type(s) and quantity of inorganic HAPs are not significantly changed from the current (1994 application) level, and the existing inorganic HAP control equipment are not altered (which are verified per permit condition 22.c.ii.).

As an insurance, when the inorganic HAP usage starts to depart significantly from the current level, and the total annual inorganic HAP emissions (verified monthly) start to exceed the level beyond three fourth (3/4) the permit 10 ton limit, the Department may request the permittee to perform

emission testing at PCDs/activities causing the significant increase to confirm actual emissions.

As stated before, the 10 tons/yr annual cap set forth in this permit is based on a monthly rolling average, continuously averaged over previous 12 month period. This means the permittee must be able to demonstrate each month that their aggregate annual HAPs emissions during the previous 12 month period was below the 10 tons/yr cap.

Items e. through h. depend an empirical equation (bi-monthly EF) formulated from a combination of (weekly) production monitoring and chemical mass balance to determine compliance status with respect to the RACT standard of 2×10^{-4} lbs VOC/cm² and the weekly PSEL of 8 tons. Item i. specifies the monitoring related to the RACT FBR, and item j. indicates the trigger date for the RACT monitoring.

The last item (k.) of Condition 24. establishes source testing requirements for PCD1. Unlike PCD26, source testing is required on PCD1 to determine its control efficiency. No source testing is required on PCD26 (as discussed in #4.) because the amount of solvent recovered is already measured (as waste) to complete the mass balance.

25. Monitoring related to Pre-approval

This condition requires the permittee to verify whether new VOC emitting activities and/or changes made to the existing VOC emitting activities at the stationary sources EU1.1 and/or EU1.2 comply with the criteria set forth in Condition 17. Verification with respect to the criteria set forth in Conditions 17.a., 17.b., and 17.d. through 17.g. must be done on a six-month basis, and these should be straight forward. The permittee needs to include in the semi-annual report a summary of these inspection results.

As specified in Conditions 25.a. and 25.c., verification with respect to the criterion set forth in Condition 17.c. is more involved. The permittee must determine whether or not the maximum combined capacity to emit of each stationary source at EU1 has been increased beyond the weekly PSEL. The permittee must also monitor the changes in the maximum capacity to emit of stationary sources at EU1 on a six month basis. If no increase is noted from the previous level, no further action is necessary. If any increase has occurred, the permittee shall submit Notice of Completion containing the required information as specified in item 25.c.i. through 25.c.iv.

TEST METHODS AND PROCEDURES

26. This section, titled "Test Methods and Procedures", is provided so that the permittee and Department will know what test methods should be used to measure pollutant emissions in the event that testing is conducted for any reason. This section does not by itself require the permittee to conduct any more testing than was previously included in the permit. Although the permit may not require testing because other routine monitoring is used to determine compliance, the Department and EPA always have the authority to require testing if deemed necessary to determine compliance with an emission limit or standard. In addition, the permittee may elect to voluntarily conduct testing to confirm the compliance status. In either case, the methods to be used for testing in the event that testing is conducted are included in the permit. This is true for SIP as well as NSPS emission limits and standards.

RECORDKEEPING REQUIREMENTS

Recordkeeping requirements, Condition 27. through 29., of this permit are drafted pursuant to OAR 340-28-2130(3)(b). As was the case with the ACDP records, all records related to the Oregon Title-V Operating Permit 34-2681 compliance monitoring must be kept at the plant site for at least 5 years.

REPORTING REQUIREMENTS

Reporting requirements, conditions 30. through 32., of this permit are drafted pursuant to OAR 340-28-2130(3)(c). Under the Source-specific Reporting Requirements of Condition 32., the fuel usage data obtained per item 32.e. is used to estimate the annual emissions from the EU2/EU3 boilers. Items 32.f. through 32.j. report the compliance status with respect to the VOC PSEL and RACT conditions; and item 32.k. provides a summary of compliance status with respect to the rolling HAP limits.

The annual (PSEL) emissions reported for criteria pollutants are based on calendar year, and the compliance status is determined at the end of the year. However, the annual aggregate emissions reported for (HAPs) per item 32.k. are based on rolling monthly average. The compliance status with respect to the annual (synthetic minor) HAP limit is determined at the end of each month; and this means a total of 12 compliance determination per year will be made with respect to the annual HAP limits set forth in Condition 19.

NON-APPLICABLE REQUIREMENTS

Pursuant to OAR 340-28-2190, the permit shield rule, non-applicable rules are grouped in this section according to the reasons (summary) as provided in the permit. Note that a particular rule that is already mentioned elsewhere in the permit, conditional type of rule in the general conditions section for example, regardless of its current applicability, is not mentioned in this section.

GENERAL CONDITIONS

The "General Conditions" section lists additional applicable rule requirements that permittee must adhere to, as with any other permit conditions; and with a few minor exceptions, the requirements of general conditions are common among all Title-5 sources.

As specified in the General condition G6., the permittee is subject to the immediate reporting of excess emissions.

As specified in the General condition G21., the permittee is subject to the modification procedural requirements applicable to non-major HAP source.

SUMMARY/PUBLIC NOTICE

The proposed permit was placed on public notice from 6/06/95 to 7/20/95, for a total of 45 days. In addition, with respect to the procedural requirements of 40 CFR Part 51.102, a separate public notice was posted in the Oregonian newspaper on 6/08/95, 36 days prior to the date of the public hearing held on 7/13/95. The RACT proposal portion of this permit was also posted on the secretary of state notice to conform with the source-specific SIP revision process. The Department received no comments from the general public.

However, during the public comment period, the Department became aware the draft permit inadvertently omitted a few (see items R1 through R4) applicable requirements. The Department also received some comments (see R5 through R7) from the U.S. EPA and the permittee, and respectably the (draft) permit has been revised as advised. In summary, the following administrative amendments have been incorporated into the draft permit:

- R1. The facility-wide (state-only enforceable) applicable requirement of the 1000 ppm SO₂ limit, OAR 340-30-530, is incorporated into (No. 6.b) the permit, which the draft permit inadvertently omitted. The 1000 ppm SO₂ limit is an (tri-county) area specific limit that applies to all permitted sources located inside the tri-county area. Intel currently has no equipment that has any chance of exceeding this area specific SO₂ limit.
- R2. Recently adopted the paint spray and architectural coating rules, OAR 340-22-900 to OAR 340-22-1050, are incorporated into (No. 11.c.) the permit.
- R3. The labeling requirements (40 CFR Part 82, Subpart E) applicable to sources using ozone depleting chemicals have been inadvertently omitted from the draft permit, and these requirements have been incorporated into the permit, condition 8.
- R4. The draft permit which previously determined the natural gas burning EU3 boilers to be non-NSPS boilers was in error. Pursuant to 40 CFR (§) Part 60.40c, Subpart Dc, "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units", the EU3 boilers do indeed heat water (hot water to be used throughout the Aloha campus) and thus subject to the NSPS standard. Appropriately, the NSPS daily monitoring (No. 23.c) of natural gas usage is now incorporated into the proposed permit.
- R5. The permit condition 14.c, the RACT compliance schedule language, has been simplified to further clarify the RACT trigger date.
- R6. The permit condition 10, the operation and maintenance requirements for PCD1, has been revised to require PCD1 to operate at or above the optimum control efficiency, yet to be determined through source tests. Appropriately the associated monitoring condition 21.b has been also revised to reflect the amended O&M requirements.
- R7. The permit conditions 24.b and 24.c, a part of the over-all VOC monitoring requirements, have been revised to clarify the waste stream and to specify the analytical method(s) used to determine the VOC content of the waste stream.

Pursuant to the permit review procedural requirements of OAR 340-28-2310, the proposed permit was then sent to Environmental Protection Agency, Region 10 on August 15, 1995. As of October 2, 1995, the Department received no objection from EPA; and all the criteria set forth in OAR 340-28-2200 (a) are now satisfied.

During the EPA 45 day review period, the following two minor change were incorporated into the (proposed) permit, and these changes are reflected in the (final) permit being issued:

- R8. Condition 20.a, the monitoring associated with the permit nuisance condition (No. 5.), has been modified to shorten the permittee's response time to public complaint from 14 days to 7 days.
- R9. The excess emissions reporting requirements, General Condition G6, have been modified to add a general recordkeeping requirement: Item f has been added.

GDY
October 3, 1995
PERMITS\T342681R

PLANT SITE EMISSION DETAIL SHEET
EMISSION SUMMARY

REVIEW REPORT: 34-2681
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	ANNUAL EMISSIONS (TONS PER YEAR)				
	PM10	SO2	NOx	CO	VOCs
BASELINE; EU1	-	-	-	-	190
BASELINE; EU2 & EU3	0.40	14.16	3.99	1.00	0.07
PSEL; EU1	-	-	-	-	190.00
PSEL; EU2 & EU3	6.35	1.24	21.52	31.95	1.43
OVER (- UNDER) BASELINE	5.95	-12.93	17.53	30.95	1.36
SER	25.00	40.00	40.00	100.00	40.00

	EU2 & EU3 BOILERS - MONTHLY EMISSIONS (TONS)				
	PM10	SO2	NOx	CO	VOCs
BASELINE	0.12	4.42	1.25	0.31	0.03
PSEL	0.77	0.22	3.14	3.55	0.18

NOTE - Enter input data ONLY @ A6 of this Spreadsheet Program

PLANT SITE EMISSION DETAIL SHEET
 BASELINE (YEAR 1978) BOILER EMISSIONS

REVIEW REPORT: 34-2691
 APPLICATION NO.: 14659
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EMISSION UNIT	YEAR	MAX. HR. CAPACITY 10E+6 btu	--- ANNUAL FUEL ---		ANNUAL EMISSIONS (LBS/YR)				
			GAS 10+6 cf	OIL 1000 gal	PM10	SO2	NOx	CO	VOC
EU2.1	FAB4-#1	1977	0.00	54.41	109	3863	1088	272	18
EU2.2	FAB4-#2	1977	0.00	54.41	109	3863	1088	272	18
EU2.3	FAB4-#3	1977	0.00	54.41	109	3863	1088	272	18
EU2.4	FAB5-#1	1978	0.00	117.89	236	8370	2358	589	40
EU2.5	FAB5-#2	1978	0.00	117.89	236	8370	2358	589	40
EU2.6	FAB5-#3	1992	0.00	0.00	0	0	0	0	0
EU2.7	FAB5-#4	1992	0.00	0.00	0	0	0	0	0
EU2.8	FAB5-#5	ELECTRIC	0.00	0.00	0	0	0	0	0
EU2.9	FAB5-#6	1993	0.00	0.00	0	0	0	0	0
EU2.10	FAB5-#7	1993	0.00	0.00	0	0	0	0	0
EU2.11	FAB5-#8	1993	0.00	0.00	0	0	0	0	0
EU2.12	AL4-#1	1990	0.00	0.00	0	0	0	0	0
EU2.13	AL4-#2	1990	0.00	0.00	0	0	0	0	0
EU2.14	AL4-#3	1990	0.00	0.00	0	0	0	0	0
EU2 TOTAL (TONS/YR):					0.40	14.16	3.99	1.00	0.07
EU3.1	D1-#1	1992	0.00	0.00	0	0	0	0	0
EU3.2	D1-#2	1992	0.00	0.00	0	0	0	0	0
EU3.3	D1-#3	1992	0.00	0.00	0	0	0	0	0
EU3.4	D1-#4	1994	0.00	0.00	0	0	0	0	0
EU3.5	D1-#5	1994	0.00	0.00	0	0	0	0	0
EU3 TOTAL (TONS/YR):					0.00	0.00	0.00	0.00	0.00

PLANT SITE EMISSION DETAIL SHEET
 BASELINE (YEAR 1978) BOILER EMISSIONS

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BOILER	YEAR	MAX. HR. CAPACITY 10E+6 btu	FUEL BASIS		HOURLY EMISSIONS (LBS/HR)				
			GAS 10+6 cf	OIL 1000 gal	PM10	SO2	NOx	CO	VOC
EU2.1 FAB4-#1	1977	3	2.86E-03	2.28E-02	0.046	1.621	0.457	0.114	0.011
EU2.2 FAB4-#2	1977	3	2.86E-03	2.28E-02	0.046	1.621	0.457	0.114	0.011
EU2.3 FAB4-#3	1977	3	2.86E-03	2.28E-02	0.046	1.621	0.457	0.114	0.011
EU2.4 FAB5-#1	1978	6.5	6.19E-03	4.95E-02	0.099	3.512	0.989	0.247	0.024
EU2.5 FAB5-#2	1978	6.5	6.19E-03	4.95E-02	0.099	3.512	0.989	0.247	0.024
EU2.6 FAB5-#3	1992	6.277			0.000	0.000	0.000	0.000	0.000
EU2.7 FAB5-#4	1992	6.277			0.000	0.000	0.000	0.000	0.000
EU2.8 FAB5-#5	ELECTRIC				0.000	0.000	0.000	0.000	0.000
EU2.9 FAB5-#6		1993	1.255		0.000	0.000	0.000	0.000	0.000
EU2.10 FAB5-#7		1993	4.185			0.000	0.000	0.000	0.000
EU2.11 FAB5-#8	1993	4.185			0.000	0.000	0.000	0.000	0.000
EU2.12 AL4-#1	1990	2.929			0.000	0.000	0.000	0.000	0.000
EU2.13 AL4-#2	1990	2.929			0.000	0.000	0.000	0.000	0.000
EU2.14 AL4-#3	1990	2.929			0.000	0.000	0.000	0.000	0.000
EU2 TOTAL					0.335	11.887	3.349	0.837	0.080
EU3.1 D1-#1	1992	20.922			0.000	0.000	0.000	0.000	0.000
EU3.2 D1-#2	1992	20.922			0.000	0.000	0.000	0.000	0.000
EU3.3 D1-#3	1992	29.4			0.000	0.000	0.000	0.000	0.000
EU3.4 D1-#4	1994	20.922			0.000	0.000	0.000	0.000	0.000
EU3.5 D1-#5	1994	20.922			0.000	0.000	0.000	0.000	0.000
EU3 TOTAL					0.000	0.000	0.000	0.000	0.000

PLANT SITE EMISSION DETAIL SHEET
CURRENT BOILER EMISSIONS

REVIEW REPORT: 34-2681
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BOILER	YEAR	MAX. HR. CAPACITY 10E+6 btu	ANNUAL FUEL		ANNUAL EMISSIONS (LBS/YR)				
			GAS 10+6 cf	OIL 1000 gal	PM10	SO2	NOx	CO	VOC
EU2.1	FAB4-#1	1977	10.82	0.00	130	28	1082	227	41
EU2.2	FAB4-#2	1977	10.82	0.00	130	28	1082	227	41
EU2.3	FAB4-#3	1977	10.82	0.00	130	28	1082	227	41
EU2.4	FAB5-#1	1978	23.44	0.00	281	61	2344	492	89
EU2.5	FAB5-#2	1978	23.44	0.00	281	61	2344	492	89
EU2.6	FAB5-#3	1992	22.64	0.00	272	59	2264	475	86
EU2.7	FAB5-#4	1992	22.64	0.00	272	59	2264	475	86
EU2.8	FAB5-#5	ELECTRIC	0.00	0.00	0	0	0	0	0
EU2.9	FAB5-#6	1993	4.53	0.00	54	12	453	95	17
EU2.10	FAB5-#7	1993	15.09	0.00	181	39	1509	317	57
EU2.11	FAB5-#8	1993	15.09	0.00	181	39	1509	317	57
EU2.12	AL4-#1	1990	10.56	0.00	127	27	1056	222	40
EU2.13	AL4-#2	1990	10.56	0.00	127	27	1056	222	40
EU2.14	AL4-#3	1990	10.56	0.00	127	27	1056	222	40
EU2 TOTAL			EU2 TOTAL (TONS/YR):		1.15	0.25	9.55	2.01	0.36
EU3.1	D1-#1	1992	140.60	0.00	1926	366	4429	11080	394
EU3.2	D1-#2	1992	140.60	0.00	1926	366	4429	11080	394
EU3.3	D1-#3	1992	197.58	0.00	2707	514	6224	15569	553
EU3.4	D1-#4	1994	140.60	0.00	1926	366	4429	11080	394
EU3.5	D1-#5	1994	140.60	0.00	1926	366	4429	11080	394
EU3 TOTAL			EU3 TOTAL (TONS/YR):		5.21	0.99	11.97	29.94	1.06

PLANT SITE EMISSION DETAIL SHEET
CURRENT BOILER EMISSIONS

REVIEW REPORT: 14-2681
APPLICATION NO.: 14659
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BOILER	YEAR	MAX. HR. CAPACITY 10E+6 btu	---- FUEL BASIS ---		HOURLY EMISSIONS (LBS/HR)				
			GAS 10+6 cf	OIL 1000 gal	PM10	SO2	NOx	CO	VOC
EU2.1 FAB4-#1	1977	3	2.86E-03	2.28E-02	0.034	0.011	0.286	0.060	0.011
EU2.2 FAB4-#2	1977	3	2.86E-03	2.28E-02	0.034	0.011	0.286	0.060	0.011
EU2.3 FAB4-#3	1977	3	2.86E-03	2.28E-02	0.034	0.011	0.286	0.060	0.011
EU2.4 FAB5-#1	1978	6.5	6.19E-03	4.95E-02	0.074	0.024	0.619	0.130	0.024
EU2.5 FAB5-#2	1978	6.5	6.19E-03	4.95E-02	0.074	0.024	0.619	0.130	0.024
EU2.6 FAB5-#3	1992	6.277	5.98E-03		0.072	0.023	0.598	0.126	0.023
EU2.7 FAB5-#4	1992	6.277	5.98E-03		0.072	0.023	0.598	0.126	0.023
EU2.8 FAB5-#5			0.00E+00		0.000	0.000	0.000	0.000	0.000
EU2.9 FAB5-#6	1993	1.255	1.20E-03		0.014	0.005	0.120	0.025	0.005
EU2.10 FAB5-#7	1993	4.185	3.99E-03		0.048	0.015	0.399	0.084	0.015
EU2.11 FAB5-#8	1993	4.185	3.99E-03		0.048	0.015	0.399	0.084	0.015
EU2.12 AL4-#1	1990	2.929	2.79E-03		0.033	0.011	0.279	0.059	0.011
EU2.13 AL4-#2	1990	2.929	2.79E-03		0.033	0.011	0.279	0.059	0.011
EU2.14 AL4-#3	1990	2.929	2.79E-03		0.033	0.011	0.279	0.059	0.011
EU2 TOTAL					0.605	0.192	5.044	1.059	0.192
EU3.1 D1-#1	1992	20.922	1.99E-02		0.273	0.076	0.628	1.570	0.056
EU3.2 D1-#2	1992	20.922	1.99E-02		0.273	0.076	0.628	1.570	0.056
EU3.3 D1-#3	1992	29.4	2.80E-02		0.384	0.106	0.882	2.206	0.078
EU3.4 D1-#4	1994	20.922	1.99E-02		0.273	0.076	0.628	1.570	0.056
EU3.5 D1-#5	1994	20.922	1.99E-02		0.273	0.076	0.628	1.570	0.056
EU3 TOTAL					1.476	0.409	3.393	8.487	0.302

FUEL USAGE SUMMARY

BOILER	MAX. HR. CAPACITY 10E+6 btu	YEAR INSTALLED	ANNUAL GAS USAGE (therms/year)		ANNUAL OIL USAGE (gallons/year)		
			Baseline	Current	Baseline	Current	
EU2.1	FAB4-#1	3	1977	0	113592	54409	0
EU2.2	FAB4-#2	3	1977	0	113592	54409	0
EU2.3	FAB4-#3	3	1977	0	113592	54409	0
EU2.4	FAB5-#1	6.5	1978	0	246115	117886	0
EU2.5	FAB5-#2	6.5	1978	0	246115	117886	0
EU2.6	FAB5-#3	6.277	1992	0	237672	0	0
EU2.7	FAB5-#4	6.277	1992	0	237672	0	0
EU2.8	FAB5-#5	ELECTRIC	--	--	0	--	--
EU2.9	FAB5-#6	1.255	1993	0	47519	0	0
EU2.10	FAB5-#7	4.185	1993	0	158460	0	0
EU2.11	FAB5-#8	4.185	1993	0	158460	0	0
EU2.12	AL4-#1	2.929	1990	0	110903	0	0
EU2.13	AL4-#2	2.929	1990	0	110903	0	0
EU2.14	AL4-#3	2.929	1990	0	110903	0	0
EU3.1	D1-#1	20.922	1992	0	1476351	0	0
EU3.2	D1-#2	20.922	1992	0	1476351	0	0
EU3.3	D1-#3	29.4	1992	0	2074597	0	0
EU3.4	D1-#4	20.922	1994	0	1476351	0	0
EU3.5	D1-#5	20.922	1994	0	1476351	0	0

AP42 EMISSION FACTORS
 (except as noted *)

	COMMERCIAL BOILER (0.5 to 10 million btu/hr)		INDUSTRIAL BOILER (10 to 100 million btu/hr)		INDUSTRIAL BOILER w/ LowNOx (10 to 100 million btu/hr)	
	GAS lbs/10E6 cf	OIL lbs/1000 gal	GAS lbs/10E6 cf	OIL lbs/1000 gal	GAS lbs/10E6 cf	GAS lbs/10E6 cf
PM10	12	2	13.7	2	13.7	13.7
SO2	2.6	71	2.6	71	2.6	2.6
NOx	100	20	140	20	31.5 *	30
CO	21	5	35	5	78.8 *	37
VOC	3.8	0.34	2.8	0.2	2.8	2.8
SO2 (HR. MAX)	3.8	71	3.8	71	3.8	3.8

FUEL OIL DATA

	%S
QAR 340-22-015: ASTM-2	0.5
QAR 340-22-015: ASTM-1	0.3
INTEL MAX. FUEL S%	0.05

CONVERSION FACTORS

btu/therm	100000
btu/scf.	1050
btu/gal dsl.	131400

* Manufacturer's specified EFs
 EFs maybe updated at permit renewal
 based on stack test results

PROCESS EMISSIONS

	tons/yr
VOCs (FSEL)	150.00
VOC HAPs	10.00
non-VOC HAPs	0.00

FEE (\$\$\$/TON/YR)

PM10	29.26
SO2	29.26
NOx	29.26
CO	0
VOCs	29.26
HAPs	29.26

- GASEOUS EMISSIONS FROM FUEL COMBUSTION -

REVIEW REPORT: 34-2681
 APPLICATION NUMBER: 14659
 PAGE: A7

BOILER ID: EU2.1 through EU2.5
 burning oil 365 days/yr

ENTER CODE: 2 1 if Industrial Boiler (10 to 100 million btu/hr)
 2 if Commercial Boiler (0.5 TO 10 million btu/hr)

MAX. CAPACITY

NATURAL GAS: 22 million btu/hr
 DIST. FUEL OIL: 167.43 gallon/hr 0.5 % sulfur
 RESIDUAL OIL: gallon/hr 0 % sulfur
 0 % nitrogen, if known

ANNUAL FUEL USAGE

NATURAL GAS: 0.00E+00 therms/yr
 DISTILLATE OIL: 1.47E+06 gallon/yr
 RESIDUAL OIL: 0.00E+00 gallon/yr

=====

NATURAL GAS / DISTILLATE FUEL OIL COMBUSTION

- AP42 EMISSION FACTORS -

	lb/10+6cf nat. gas		lb/10+3 gal dist. oil	MAX HR EMISSION		ANNUAL EMISSION	
	average	hourly		ng	oil	ng	oil
				(lb/hr)		(tons/yr)	
PARTICULATES	12	12	2	0.251	0.335	0.000	1.467
SO2	2.6	3.8	71	0.080	11.887	0.000	52.067
NOx	100	100	20	2.095	3.349	0.000	14.667
CO	21	21	5	0.440	0.837	0.000	3.667
VOCs	2.8	2.8	0.34	0.059	0.057	0.000	0.249

=====

RESIDUAL FUEL OIL COMBUSTION

	--- HOURLY EMISSION (lb/hr) ---			-- ANNUAL EMISSION (ton/yr) --		
	GRADE 6	GRADE 5	GRADE 4	GRADE 6	GRADE 5	GRADE 4
PARTICULATES	0.000	0.000	0.000	0.000	0.000	0.000
SO2	0.000	0.000	0.000	0.000	0.000	0.000
* NOx	0.000	0.000	0.000	0.000	0.000	0.000
CO	0.000	0.000	0.000	0.000	0.000	0.000
VOCs	0.000	0.000	0.000	0.000	0.000	0.000

NOx emission (below) reflects residual oil N2 content (if %N2 is known)

* NOx 0.000 0.000

- BIMONTHLY VOC EMISSIONS -
 tons/bimonth

BI-MONTH	ACTUAL (CMB)	EF & PROD.
JAN/FEB	15.9	15.6
MAR/APR	26.0	26.2
MAY/JUN	25.3	25.3
JUL/AUG	17.0	16.4
SEP/OCT	26.7	27.8
NOV/DEC	41.4	39.6

FIGURE 1. 1993 VOC EMISSIONS

REAL -vs- EF BASED

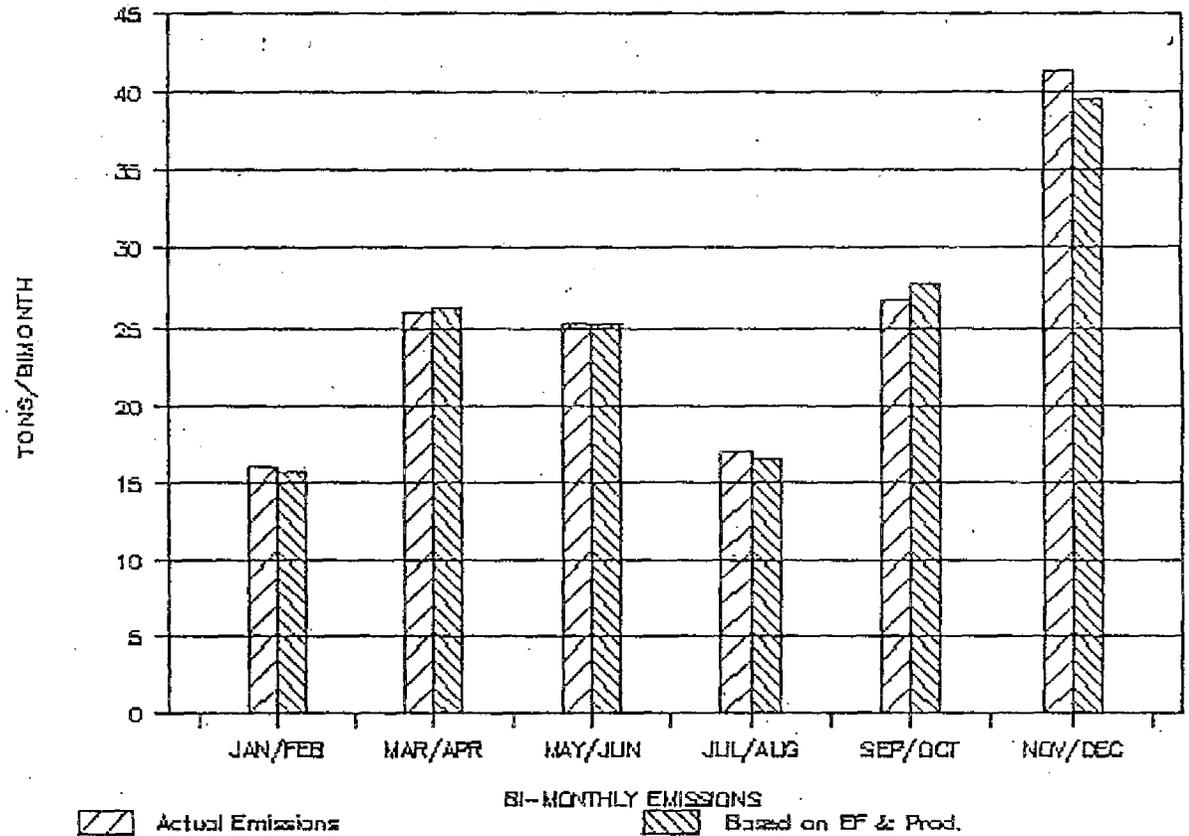


Table 1

Control Equipment and Control Efficiencies

<u>VOC Control Equipment</u>	<u>Control Efficiencies (%)</u>
Cold Cleaner (low volatility)	
○ cover	55 - 80
○ mechanically assisted cover and spray and agitation control	50 - 90
Cold Cleaner (high volatility)	
○ cover	55
○ mechanically assisted covers and spray and agitation controls	70
Batch-loaded Vapor Cleaner	
○ cover	45 - 60
○ mechanically assisted covers and spray and agitation controls	60 - 75
Conveyorized Vapor Cleaner	
○ cover	25
○ mechanically assisted covers and spray and agitation controls	60
Carbon Absorbers	40 - 95 ^{a/}
Refrigerated Chillers	10 - 40 ^{b/}
Higher Freeboard Ratio	25 - 50 ^{c/}
Use of Non-VOC Solvents	100

^{a/} A typical value is about 40 percent.

^{b/} For a batch-loaded vapor cleaner.

^{c/} Based on a baseline freeboard ratio of 0.5 for batch-loaded vapor cleaners. Increasing the ratio from 0.5 to 0.75 and 1.0 results in about 25 and 50 percent emission reduction, respectively.

ATTACHMENT A
 STACK TEST SUMMARY

N/A = Not Applicable

TEST	SOURCE/STACK	CHEMICAL	USAGE	EMISSIONS	
			(LB/HR)	(LB/HR)	%EVAP
FAB 4:					
1	Degreaser Hood Fan	IPA	0.83	0.0762	9.18
		TCA	0.46	0	0
		Acetone	0.27	0.0038	1.43
		Freon	N/A	0.0050	0
		HMDS	N/A	0.0009	0
		Cyclohex	N/A	0.0001	0
		Cel Acet	N/A	0.0004	0
		Xylene	N/A	0.0005	0

The hood was used for 15 minutes to clean D&W parts.

2	Degreaser Hood Fan	IPA	1.37	0.1384	10.10
		Freon	0.55	0.0016	0.30
		Acetone	N/A	0.0013	0
		Methyl Cel	N/A	0.0003	0
		TCA	N/A	0.0053	0
		CTC	N/A	0.0002	0
		Cyclohex	N/A	0.0001	0
		Cel Acet	N/A	0.0012	0
Xylene	N/A	0.0003	0		

The hood was used for 1 hour to degrease 30 parts.

1	Solvent Hood Fan	Cel Acet	18.8	0.0342	0.18
		NBA	2.16	0.0008	0.4
		Xylene	3.38	0.0178	0.53
		Acetone	N/A	0.0003	0
		IPA	N/A	0.0038	0
		Freon	N/A	0.0004	0
		Methyl Cel	N/A	1.5775	0
		TCA	N/A	0.0003	0
		Cyclohex	N/A	0.0001	0
		Chloroben	N/A	0.0010	0

Sink was used for 5 hours. Poured 43 gallons of waste resist.

<u>TEST</u>	<u>SOURCE/STACK</u>	<u>CHEMICAL</u>	<u>USAGE (LB/HR)</u>	<u>EMISSIONS (LB/HR)</u>	<u>%EVAP</u>
2	Solvent Hood Fan	Cel Acet	20.11	0.3484	1.74
		NBA	2.31	0.0026	31.32
		Xylene	3.53	1.1055	0.11
		Acetone	N/A	0.1837	0
		IPA	N/A	0.0053	0
		Methyl Cel	N/A	0.0030	0
		TCA	N/A	0.0003	0
		Cyclohex	N/A	0.0001	0
		Chloroben	N/A	0.0010	0

Sink was used for 6 hours. Poured 46 gallons of waste resist.

1	Small Solvent Hood	Acetone	1.10	0.6341	57.65
		IPA	N/A	0.0009	0
		Freon	N/A	0.0001	0
		HMDS	N/A	0.0016	0
		NBA	N/A	0.0036	0
		Chloroben	N/A	0.0108	0
		Cel Acet	N/A	0.1099	0
		Xylene	N/A	0.0607	0

Used for 2 hours.

2	Small Solvent Hood	Acetone	1.10	0.4235	38.51
		IPA	N/A	0.0013	0
		NBA	N/A	0.0005	0
		Cel Acet	N/A	0.0178	0
		Xylene	N/A	0.0635	0

Used for 2 hours.

FAB 5:

1	Degreaser Hood	IPA	1.86	0.0824	4.43
		Freon	0.27	0	0
		TCA	0.23	0.0223	9.72
		Acetone	0.14	0.0884	63.21
		HMDS	0.03	0	0
		NBA	N/A	0.0001	0
		Cel Acet	N/A	0.0027	0
		Xylene	N/A	0.0011	0

Hood used 7 separate occasions.

<u>TEST</u>	<u>SOURCE/STACK</u>	<u>CHEMICAL</u>	<u>USAGE (LB/HR)</u>	<u>EMISSIONS (LB/HR)</u>	<u>%EVAP</u>
2	Degreaser Hood	HMDS	0.53	0.0027	0.51
		Acetone	N/A	0.0443	0
		IPA	N/A	0.0734	0
		Methyl Cel	N/A	0.0025	0
		TCA	N/A	0.0183	0
		Cyclohex	N/A	0.0029	0
		NBA	N/A	0.0001	0
		Chloroben	N/A	0.0001	0
		Cel Acet	N/A	0.0016	0
Xylene	N/A	0.0009	0		

Hood used once.

1	Solvent Hood	Acetone	12.48	0.2037	1.63
		Cel Acet	0.01	0.0226	226.89
		Xylene	0.001	0.0087	871.69
		NBA	0.001	0.0002	23.54
		M-pyrrol	0.40	Not Tested	
		IPA	N/A	0.0020	0
		Freon	N/A	0.0001	0
		TCA	N/A	0.0043	0

Hood used 8 times.

2	Solvent Hood	Acetone	0.93	0.2606	28.03
		Cel Acet	0.02	0.0177	88.96
		Xylene	0.003	0.0103	344.08
		NBA	0.003	0.0001	3.49
		M-pyrrol	0.40	Not Tested	
		IPA	N/A	0.0013	0
		TCA	N/A	0.0159	0
Chloroben	N/A	0.0004	0		

1	Degreaser Hood Downstairs	TCA	0.92	0.117	12.71
		IPA	0.55	0.065	11.82
		Acetone	0.55	0.072	13.09
		NBA	N/A	0.002	0
		Cel Acet	N/A	0.001	0

Hood used once to degrease parts.

<u>TEST</u>	<u>SOURCE/STACK</u>	<u>CHEMICAL</u>	<u>USAGE (LB/HR)</u>	<u>EMISSIONS (LB/HR)</u>	<u>%EVAP</u>
2	Degreaser Hood Downstairs	TCA	0.92	0.0349	3.79
		IPA	0.55	0.0097	1.76
		Acetone	0.55	0.0069	1.25
		Freon	N/A	0.0007	0
		NBA	N/A	0.0036	0
		Cel Acet	N/A	0.0010	0
		Xylene	N/A	0.0005	0
		Trimethyl	N/A	0.0020	0

Hood was used once to degrease parts.

CHEMICAL NAME INDEX

IPA	Isopropyl Alcohol
TCA	1,1,1, Trichloroethane
NBA	N Butyl Acetate
M-pyrrol	1-Methyl-2-Pyrrolidone
Cel Acet	Cellosolve Acetate
Freon	Freon 113
Cyclohex	Cyclohexanone
Chloroben	Chlorobenzene
Methyl Cel	Methyl Cellosolve
HMDS	Hexamethyldisilazane
CTC	Carbon Tetrachloride
Trimethyl	Trimethylbenzene

ESTIMATED ANNUAL USAGE (ranges in lbs/yr)

CHEMICAL NAME	CAS NUMBER	ESTIMATED ANNUAL USAGE (ranges in lbs/yr)				
		INSIGNIFICANT	1,001 - 10,000	10,001 - 20,000	20,000 - 50,000	> 50,000
Ammonia (anhydrous)	7664417		X			
Boron trichloride	10294345		X			
Boron trifluoride	7637042	X				
Chlorine	7782505		X			
Diborane	19287457	X				
Dichlorosilane	4109960	X				
Hydrochloric acid (solution conc. > 25%)	7647010				X	
Hydrogen	1333740				X	
Hydrogen chloride (anhydrous)	7647010				X	
Hydrogen fluoride	7664393				X	
Nitric acid	7697372				X	
Phosphine	7803512	X				
Phosphorus oxychloride	10025873	X				
Silane	7803625	X				
Sulfuric acid	664939					X

AIR CONTAMINANT DISCHARGE PERMIT ADDENDUM

Department of Environmental Quality
Northwest Region
2020 SW 4th, Suite 400
Portland, Oregon 97201-4987
Telephone: (503) 229-5263

Issued in accordance with the provisions of ORS 468A.040 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

PCC Structural, Inc.
4600 S.E. Harney Drive
Portland, OR 97206

PLANT SITE LOCATION:

Johnson Creek Complex
4600 S.E. Harney Drive
Portland, Oregon

INFORMATION RELIED UPON:

VOC RACT Analysis
Submitted: May, 1993

Supplementary Information
Submitted: May, 1994

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY:

Tom Bispham

Tom Bispham, Northwest Region Administrator

APR 04 1997

Dated

ADDENDUM NO. 2



RACT Requirements

19. By no later than one year after notification by the Department of approval by the EPA of the source specific RACT determination, the permittee shall provide controls to reduce the VOC emissions from the Large Parts Campus Steel and Titanium (LPC-S and LPC-T) investment casting operations by a minimum of 90 percent.

(This condition is included in the Oregon State Implementation Plan (SIP). Any changes to this condition must be submitted as SIP revisions.)

20. By no later than 90 days after the notification of EPA approval, the permittee shall submit to the Department a final control strategy concerning the VOC emissions from the investment casting operations. The plan shall include a schedule and dates of the project interim steps leading up to the compliance date specified in Condition 19. above. The emission reductions may be demonstrated by the source testing required by Conditions 16. and 17. in the existing permit, or an alternative plan that is approved by the Department.

(This condition is included in the Oregon State Implementation Plan (SIP). Any changes to this condition must be submitted as SIP revisions.)

21. In order to calculate compliance with Condition 19., the permittee may average the destruction and removal efficiency of all its investing rooms using VOC containing slurries. Any investing room for which the VOC content of the slurries used is less than 2% (not including water) VOC on a weighted average basis shall be exempt from RACT and this condition's compliance calculation.

(This condition is included in the Oregon State Implementation Plan (SIP). Any changes to this condition must be submitted as SIP revisions.)



AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality
Eastern Region, Bend Office
2146 N.E. 4th Street, Suite 104
Bend, OR 97701
Telephone: (541) 388-6146

Issued in accordance with the provisions of ORS 468A.040 and based
on the land use compatibility findings included in the permit record.

ISSUED TO:

Ostrander Resources Company
P.O. Box 1340
Lakeview, OR 97630

INFORMATION RELIED UPON

Application No.: 016559
Date Received: 8/22/1997

PLANT SITE LOCATION:

Fremont Sawmill
Missouri Ave.
Lakeview, OR 97630

LAND USE COMPATIBILITY STATEMENT

From: Lake County Planning and Town of Lakeview
Date: 3/24/1989 and 3/27/1989

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY


Stephanie Hallock, Eastern Region Administrator


Dated

Source(s) Permitted to Discharge Air Contaminants:

TYPE OF FACILITY (FROM TABLE 4, OAR 340-28-1750)

STANDARD INDUSTRY CODE

10.a. Sawmill and Planing Mill, greater than 25,000 bd ft/shift	2421
60. Fuel Burning Equipment, outside AQMA wood-fired, greater than 30 million Btu/hr	4961

PERMITTED ACTIVITIES

1. The permittee is herewith allowed to discharge exhaust gases containing air contaminants only in accordance with the permit application and the limitations contained in this permit. Until such time as this permit expires or is modified or revoked, the permittee is herewith allowed to discharge exhaust gases from those processes and activities directly related or associated thereto in accordance with the requirements, limitations, and conditions of this permit from the air contaminant source(s) listed above.

2. Compliance with the specific requirements, limitations and conditions contained herein does not relieve the permittee from complying with all other laws, rules and standards administered by the Department, nor does it allow significant levels of emissions of air contaminants not limited in this permit or contained in the permit application.

PERFORMANCE STANDARDS AND EMISSION LIMITS

3. Particulate emissions from any single air contaminant source (except for fuel burning equipment) shall not exceed any of the following:

- a. 0.2 grains per standard cubic foot, for sources existing prior to June 1, 1970;
- b. 0.1 grains per standard cubic foot, for sources installed, constructed, or modified after June 1, 1970; and
- c. An opacity equal to or greater than twenty percent (20%) for a period aggregating more than three (3) minutes in any one (1) hour, excluding uncombined water vapor.

4. The permittee shall operate and control the steam generating boiler(s) in accordance with the following list of boiler operating parameters and emission limitations:

Maximum Emission Limits				
Boiler Identification	Fuel Used	Opacity ¹	Particulates ²	Maximum Operation ³
#1 Wellons	Hogged Wood Waste	20	0.1	24,000
#2 Wellons	Hogged Wood Waste	20	0.1	24,000

- (1) Maximum opacity that shall not be equaled or exceeded for a period or periods aggregating more than three minutes in any one hour, excluding uncombined water vapor.
 - (2) Particulate emission limitation is stated in grains per standard cubic foot, corrected to 12% carbon dioxide.
 - (3) Maximum hourly average steam production (pounds per hour).
5. The permittee shall not operate the boilers with any fuels other than those fired during the Department approved emissions source test.
6. The permittee shall not allow the emission of odorous matter or other fugitive emissions so as to create nuisance conditions off the permittee's property. Nuisance conditions will be verified by Department personnel. The creation of nuisance conditions may, in addition to any other action the Department may take, result in a permit modification to require a compliance schedule to control the nuisance conditions.
7. The permittee shall minimize fugitive dust emissions by:
- a. Treating vehicular traffic areas of the plant site under the control of the permittee.
 - b. Storing collected material from air pollution control equipment in a covered container or other method equally effective in preventing the material from becoming airborne during storage and transfer.

PLANT SITE EMISSION LIMITS

8. Emissions from the sources listed shall not exceed the following:

Source	PM		PM ₁₀		CO		NO _x		SO ₂		VOC	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Boilers	14	58	12.4	52	15.8	66	14.9	62	0.7	3	1	4
Cyclones	11	12	5.6	6	---	---	---	---	---	---	---	---
Kilns	---	---	---	---	---	---	---	---	---	---	50	60
TOTALS	25	70	18	58	15.8	66	14.9	62	0.7	3	51	64

Note: Target boxes and other wood dust emission points are included with cyclone emissions.

The PSEL for the boilers is based on a combined annual production of 400,000,000 pounds of steam at a maximum hourly steam production of 24,000 pounds per boiler. The cyclone PSEL is based on 34,058 bone dry tons (BDT)/year and 18 BDT/hr of material processed through the cyclones, 47,016 BDT/yr and 15 BDT/hr of material processed through the target boxes, and 23,545 BDT/yr and 6 BDT/hr of material processed through the wigwag. The Plant Site Emission Limit for the kilns is based on 60,000,000 board feet of lumber dried in the kilns. Any increases above these levels must receive the prior approval of the Department.

SOURCE TESTING REQUIREMENTS

9. By no later than December 31, 2000, the permittee shall demonstrate that each hogged fuel boiler is capable of operating at its maximum operating capacity in continuous compliance with Conditions 4 and 8 by conducting a source test for particulate, PM₁₀, NO_x, and CO emissions.

All tests shall be conducted in accordance with the testing procedures on file at the Department and with the pretest plan submitted at least 15 days in advance and approved by the Source Test Coordinator in the Eastern Region of the Department in Bend (unless otherwise notified). Test data and results shall be submitted for review to the Source Test Coordinator within 30 days after testing.

Only regular operating staff may adjust the combustion system and emission control parameters during the source performance tests and within two (2) hours prior to the tests. Any operating adjustments made during the source performance tests, which are a result of consultation during the tests with source testing personnel, equipment vendors or consultants, may render the source performance test invalid.

During the source test the following parameters should be monitored and recorded:

- a. Opacity readings on the exhaust stack following the procedures of EPA Method 9.
- b. Steam flow rate.
- c. Type of fuel or physical characteristics of the fuel, including species of wood/bark, percent fines (less than 1/8"), and moisture content (wet basis).
- d. Process operating parameters during the emissions source test, including but not limited to time and frequency of grate cleaning.

MONITORING REQUIREMENTS

10. The permittee shall effectively inspect and monitor the operation and maintenance of the plant and associated air contaminant control facilities and shall implement the procedures necessary to monitor and record the following parameters. A record of all such data shall be maintained for a period of two years at the plant site for inspection by the authorized representatives of the Department. All required continuous monitoring shall be conducted in accordance with a Department approved plan, which must be submitted within sixty (60) days of permit issuance.
- a. All operating and production parameters to be reported to the Department annually as required in Condition 11.
 - b. Excess emissions records as defined in OAR 340-28-1400 through 340-28-1440 (recorded on occurrence).
 - c. A description of any maintenance to the air contaminant control system (recorded on a occurrence).

REPORTING REQUIREMENTS

11. The permittee shall submit to the Department by January 15 of each year this permit is in effect three (3) copies of the following information for the preceding calendar year:
- a. Operating parameters:
 - i) Sawmill production (board feet).
 - ii) Type and amount of fuel burned in boiler (BDT/yr) (include average moisture content of wood).
 - iii) Annual steam production of each boiler (lbs/yr).
 - iv) Maximum hourly steam production of each boiler (lbs/hr).
 - v) Annual and maximum hourly throughput for cyclones and target box (BDT, include calculation protocol if direct measurements are not used).
 - vi) Total lumber dried in kilns (brd ft/yr).
 - b. A log of all planned and unplanned excess emissions in accordance with OAR 340-28-1440.
 - c. Explain any permanent changes made in the plant process or production which would affect air contaminant emissions. (Indicate when changes were made.)
 - d. List all major maintenance performed on air pollution equipment.
 - e. The report shall be sent to the Eastern Region, Bend Office, 2146 N.E. 4th St., Suite 104, Bend, Oregon 97701, unless otherwise notified. The permit number must be prominently displayed on the report.

FEE SCHEDULE

12. The Annual Compliance Determination Fee for this permit is due on October 1 of each year this permit is in effect. An invoice indicating the amount, as determined by Department regulations, will be mailed prior to the above date. The fee shall be submitted to the Business Office of the Department in Portland (unless otherwise notified).

GENERAL CONDITIONS AND DISCLAIMERS

- G1. The permittee shall allow Department of Environmental Quality representatives access to the plant site and pertinent records at all reasonable times for the purposes of making inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emission discharge records and otherwise conducting all necessary functions related to this permit in accordance with ORS 468.095.
- G2. The permittee shall have available at the facility at all times a copy of the Air Contaminant Discharge Permit.

- G3. The permittee is prohibited from conducting open burning, except as allowed by OAR 340 Division 23.
- G4. The permittee shall at all times conduct dust suppression measures to meet the requirements set forth in "Fugitive Emissions" and "Nuisance Conditions" in OAR 340-21-050 through 340-21-060.
- G5. In accordance with OAR 340-28-1400 through 340-28-1450, the permittee shall immediately (i.e. as soon as possible but in no case more than one hour after the beginning of the excess emission period) notify the Department by telephone or in person of any excess emission, other than pre-approved startup, shutdown, or scheduled maintenance. Notification shall include the source name, nature of the emissions problem, name of the person making the report, name and telephone number of contact person for further information, date and time of the onset of the upset condition, whether or not the incident was planned, the cause of the excess emission (startup, shutdown, maintenance, breakdown, or other), equipment involved in the upset, estimated type and quantity of excess emissions, estimated time of return to normal operations, efforts made to minimize emissions, and a description of remedial actions to be taken. Follow-up reporting shall be made in accordance with Department direction and OAR 340-28-1430(2) and 340-28-1440.

Notification shall be made to the appropriate regional or branch office. Current Departmental telephone numbers are:

Klamath Falls 883-5603
Bend 388-6146

In the event of any excess emissions which are of a nature that could endanger public health and occur during nonbusiness hours, weekends, or holidays, the permittee shall immediately notify the Department by calling the Oregon Emergency Response System (OERS). The current number is 1-800-452-0311.

- G6. The permittee shall notify the Department in writing using a Departmental "Notice of Construction" form, or "Permit Application Form", and obtain approval in accordance with OAR 340-28-800 through 340-28-820 before:
- a. Constructing or installing any new source of air contaminant emissions, including air pollution control equipment, or
 - b. Modifying or altering an existing source that may significantly affect the emission of air contaminants, or
 - c. Making any physical change which increases emissions, or
 - d. Changing the method of operation, the process, or the fuel use, or increasing the normal hours of operation to levels above those contained in the permit application and reflected in this permit and which result in increased emissions.
- G7. Application for a modification of this permit must be submitted not less than 60 days prior to the source modification. A Filing Fee and an Application Processing Fee must be submitted with an application for the permit modification.
- G8. The permittee shall notify the Department in writing using a Departmental "Permit Application Form" within 60 days after the following:
- a. Legal change of the registered name of the company with the Corporations Division of the State of Oregon, or
 - b. Sale or exchange of the activity or facility.

Applicable Permit Fees must be submitted with an application for the name change.

- G9. Application for renewal of this permit must be submitted not less than 60 days prior to the permit expiration date. A Filing Fee, an Application Processing Fee and an Annual Compliance Determination Fee must be submitted with the application for the permit renewal.
- G10. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
- G11. This permit is subject to revocation for cause as provided in OAR 340-14-045.

ALL INQUIRIES SHOULD BE DIRECTED TO:

Department of Environmental Quality
Eastern Region, Bend Office
2146 N.E. 4th Street, Suite 104
Bend, OR 97701
Telephone: (541) 388-6146