



State of Oregon
Department of
Environmental
Quality

**OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR CONTAMINANT DISCHARGE PERMIT**

**Northwest Region
700 NE Multnomah St., Ste 600
Portland, OR 97232-4100
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:

Intel Corporation
5200 NE Elam Young Parkway
M/S RS5-115
Hillsboro, OR 97124

INFORMATION RELIED UPON:

Application Number: 033516
Received: 03/07/2022

PLANT SITE LOCATIONS:

Aloha Campus
3585 SW 198th Avenue
Aloha, OR 97007

Ronler Acres Campus
2501 NW 229th Avenue
Hillsboro, OR 97124

LAND USE COMPATIBILITY STATEMENT:

Aloha Campus
Issued by: Washington County
Dated: 09/20/1991, 12/19/2014

Ronler Acres Campus
Issued by: City of Hillsboro
Dated: 12/19/2014

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY

Joshua Alexander

Joshua Alexander (Oct 24, 2022 18:32 PDT)

Joshua Alexander, Northwest Region Air Quality Permit Manager

Oct 24, 2022

Date

Nature of Business: Semiconductor Manufacturing SIC: 3674 NAICS: 334413

RESPONSIBLE OFFICIALS

Title: Vice President Technology and
Manufacturing Group

FACILITY CONTACT PERSON

Name: Isaac Dahlke (primary)
Phone: (503) 358-0205

Name: Christopher Norgbey (secondary)
Phone: (757) 848-3453

Addendum Number - 02

In accordance with OAR 340-216-0020(5), the following conditions are modified and added to this permit:

Modified Existing Conditions

Modification of PM, PM₁₀ and PM_{2.5} emission calculation existing conditions for Scrubbers and Rotor Concentrator Thermal Oxidizers (RCTO) equipped with wet electrostatic precipitators (WESPs):

SCRUBBERS

59.c. (modified) Calculate emissions of PM, PM₁₀, and PM_{2.5}, SO₂, and VOC as follows:
Process Emissions

59.c.i. Monthly emissions = Monthly chemical usage rate x EF x appropriate unit conversions x [(1-(RE x Monthly WESP operating uptime percentage))], where EF means the emission factor used in the Detail Sheets for EU-Scrubbers, or as approved by DEQ and RE means the WESP removal efficiency for PM/PM₁₀/PM_{2.5} as established in new condition 812.a.

RCTOs

60.e. (modified) Calculate monthly emissions of PM, PM₁₀ and PM_{2.5} as follows:
Process Emissions

60.e.i. Monthly emissions = Monthly chemical usage rate x EF x appropriate unit conversions x [1-(RE x Monthly WESP operating uptime percentage)], where: EF means the emission factor used in the Detail Sheets for EU-RCTOs, or as approved by DEQ, and RE means the WESP removal efficiency as established in new condition 81.a.

New Conditions

RCTO with WESP

The following RCTOs are equipped with wet electrostatic precipitators (WESP) for added particulate control:

RCTO ID	WESP ID	Manufacturer
Anguil RCTO D1X-1	D1X-WSP138-5-20	Beltran
Anguil RCTO D1X-2	D1X-WSP138-6-20	Beltran
Anguil RCTO D1X-3	D1X-WSP138-7-20	Beltran

81. RCTO WESP Testing, Monitoring and Recordkeeping [OAR 340-216-0066(3)(c)]

81.a. The permittee may utilize an 83% removal efficiency during any time the RCTO WESPs shown above are operated with a 15-minute block average voltages are at or above the levels specified in condition 81.c.ii. The permittee may conduct particulate source testing in accordance with a DEQ approved source test plan, of RCTO WESP to establish a different removal efficiency, as approved in writing by DEQ, for purposes of emissions calculations.

81.b. If future RCTO WESPs are installed and are not identical to those listed above, the permittee may use manufacturer removal efficiency guarantee or conduct representative testing (at least one WESP for the group of identical WESPs) within 60 days of reaching

- maximum design capacity, but no later than the end of the calendar year following the calendar year of installation after the WESP becomes operational to establish and utilize a higher removal efficiency. Prior to Department approval of the new removal efficiency, the permittee must employ the most current removal efficiency for the unit listed above.
- 81.c. The permittee must comply with the following conditions pertaining to the operation of the RCTO WESPs:
- 81.c.i. Voltage data must be monitored on a continuous basis for each WESP when in operation. 15-minute block averages of voltage must be recorded for each RCTO WESP.
 - 81.c.ii. Downtime is considered when the WESP is offline or when the 15-minute block average voltage is less than 33 kV for Beltran-manufactured RCTO WESPs,
 - 81.c.iii. For future non-Beltran RCTO WESPs, the voltage downtime indicator must be established within six months of operation of the unit(s) to be based on the first 120 days of operating data. The downtime indicator value must be equivalent to 15 kV less than the mean for the individual or manufacturer-group of RCTO WESPs.
 - 81.c.vi. Voltage readings of less than the minimum required voltage in condition 81.c.ii., downtime indicator value, and associated downtime are not a violation of this permit, but rather are to be utilized for purposes of emission inventory calculations for PSEL compliance.
- 81.d. Recordkeeping Requirement The permittee must maintain the following records:
- 81.d.i. 15-minute block average voltage of each WESP;
 - 81.d.ii. Quality assurance for the transformer rectifier set ("TR set") including an annual voltage zero check;
 - 81.d.iii. Individual WESP downtime for each calendar month and the operational status of associated RCTO;
 - 81.d.iv. It is not a violation of this permit to operate an RCTO without the associated WESP. However, during any period when a WESP is not operating but the associated RCTO is operating, the permittee may not apply the removal efficiency in Condition 81.a when calculating emissions.

Scrubbers with WESP

The following acid scrubbers are equipped with wet electrostatic precipitators (WESP) for added particulate control:

Scrubber ID	WESP ID	Manufacturer
D1X-SC133-1-00	D1X-WSP133-1-30	Lundberg
D1X-SC133-2-00	D1X-WSP133-2-30	Lundberg
D1X-SC133-3-00	D1X-WSP133-3-30	Lundberg/ to be determined
D1X-SC133-5-00	D1X-WSP133-5-30	Beltran
D1XM2-SC133-2-00	D1XM2-WSP133-2-30	Lundberg
D1XM2-SC133-3-00	D1XM2-WSP133-3-30	Lundberg
D1XM2-SC133-4-00	D1XM2-WSP133-4-30	Lundberg
D1XM2-SC133-5-00	D1XM2-WSP133-5-30	Lundberg
D1XM3-SC133-1-00	D1XM3-WSP133-1-30	Lundberg
D1XM3-SC133-2-00	D1XM3-WSP133-2-30	Lundberg
D1XM3-SC133-3-00	D1XM3WSP133-3-30	Lundberg
D1XM3-SC133-4-00	D1XM3-WSP133-4-30	Lundberg/ to be determined
D1XM3-SC133-5-00	D1XM3-WSP133-5-30	Lundberg/ to be determined

Scrubber ID	WESP ID	Manufacturer
RA4-SC133-1	RA4-WSP133-1-30	Lundberg/ to be determined
RA4-SC133-2	RA4-WSP133-2-30	Lundberg/ to be determined

82. Scrubber WESP Testing, Monitoring and Recordkeeping [OAR 340-216-0066(3)(c)]

- 82.a. The permittee may utilize a 90% removal efficiency during any time that the scrubber WESPs shown above are operated and the 15-minute block average voltages are at or above the levels specified in Condition 82.c.ii. The permittee may conduct particulate source testing in accordance with a DEQ approved source test plan, of the scrubber WESP to establish a different removal efficiency, as approved in writing by DEQ, for purposes of emission calculations.
- 82.b. If future scrubber WESPs are installed and are not identical to those listed above, the permittee may use manufacturer removal efficiency guarantee or conduct representative testing (at least one WESP for the group of identical WESPs) within 60 days of reaching maximum design capacity, but no later than the end of the calendar year following the calendar year of installation after the WESP became operational to establish and utilize a higher removal efficiency.
- 82.c. The permittee must comply with the following conditions pertaining to the operation of the Scrubber WESPs:
- 82.c.i. Voltage data must be monitored on a continuous basis for each WESP when in operation. 15-minute block averages of voltage must be recorded for each Scrubber WESP.
- 82.c.ii. Downtime is considered when the WESP is offline or when the 15-minute block average voltage is less than 23 kV for Beltran-manufactured Scrubber WESPs or less than 50 kV for Lundberg-manufactured Scrubber WESPs.
- 82.c.iii. For future non-Beltran or non-Lundberg Scrubber WESPs, the voltage downtime indicator must be established within six months of operation of the unit(s) to be based on the first 120 days of operating data. The downtime indicator value must be equivalent to 15 kV less than the mean for the individual or manufacturer-group of Scrubber WESPs.
- 82.c.iv. Voltage readings of less than the minimum required voltage in condition 82.c.ii, downtime indicator value and associated downtime are not a violation of this permit, but rather are to be utilized for purposes of emission inventory calculations for PSEL compliance.
- 82.c.v. If the permittee installs non-Beltran or non-Lundberg Scrubber WESPs, the voltage downtime indicator must be based on the first 120 days of operating data and established within six months of commencing operation of the unit(s). The downtime indicator value must be equivalent to 15 kV less than the mean voltage for the individual or manufacturer-group of Scrubber WESPs.
- 82.d. Recordkeeping Requirement The permittee must maintain the following records:
- 82.d.i. 15-minute block average voltage of each WESP;
- 82.d.ii. Quality assurance for the transformer rectifier set ("TR set") including an annual voltage zero check;
- 82.d.iii. Individual WESP downtime for each calendar month and the operational status of associated Scrubber;
- 82.d.iv. It is not a violation of this permit to operate a Scrubber without the associated WESP. However, during any period when a WESP is not meeting the minimum required voltage, but the associated Scrubber is operating, the permittee may not apply the removal efficiency in Condition 82.a0 when calculating emissions.

NESHAP – Subpart WWWW – Standards for Plating and Polishing Operations

83. The permittee must comply with all applicable provisions of 40 CFR 63 Subpart WWWW, adopted herein by reference. (Note – refer to 40 CFR 63 Subpart WWWW and/or Subpart A for definitions of terminology stated in these associated conditions).
- 83.a. The permittee must be in compliance with the applicable provisions of this subpart for each existing affected source it operates, including the applicable management practices and equipment standards at all times;
- 83.b. If the permittee installs a new Subpart WWWW affected source, the source must be in compliance with the subpart upon startup;
- 83.c. For each electrolytic process plating tank without cyanide that contains plating and polishing metal HAP and operates at a pH of <12, the permittee must comply with one of the three control options below and implement the applicable management practices in Condition 83.d., as practicable [40 CFR 63.11507(a)]:
- 83.c.i. Use a wetting agent/fume suppressant in the bath of the affected tank as follows:
- (A) Initially add the wetting agent/fume suppressant in the amounts recommended by the manufacturer for the specific type of electrolytic process;
 - (B) Add wetting agent/fume suppressant in proportion to the other bath chemistry ingredients that are added to replenish the bath, as in the original make-up of the bath, or in proportions such that the bath contents are returned to that of the original make-up of the bath;
 - (C) If a wetting agent/fume suppressant is included in the electrolytic process bath chemicals used in the affected tank, it is not necessary to add additional wetting agent/fume suppressants to the tank to comply with this rule;
 - (D) The permittee must state in the annual compliance certification that wetting agent/fume suppressant has been added according to the manufacturer's specifications and operating instructions [OAR 340-216-0066(3)(c)]; OR
- 83.c.ii. Capture and exhaust emissions from the affected electrolytic tank(s) to the Aloha Campus F15 wet scrubbers F15133-1, F15133-2, F15133-3, F15133-4, F15133-5 and F15133-6 in compliance with permit condition 37 and the following:
- (A) Operate all capture and control devices according to the manufacturer's specifications and operating instructions;
 - (B) The manufacturer's specifications and operating instructions must be kept at the facility at all times in a location where they can be easily accessed by the operators;
 - (C) Following malfunction or failure of the control equipment, the permittee must take immediate corrective action to return the equipment to normal operation;
 - (D) The permittee must state in the annual compliance certification that emissions from the affected electrolytic tank(s) were captured and routed to Aloha Campus F15 wet scrubbers [OAR340-216-0066(3)(c)]; OR
- 83.c.iii. The permittee must cover the tank surface and must demonstrate compliance according to the following:
- (A) For batch electrolytic process tanks, a tank cover must be operated with the cover in place for at least 95 percent of the electrolytic process operating time;

- (B) For continuous electrolytic process tanks at least 75 percent of the surface of the tank must be covered whenever the electrolytic process tank is in operation;
 - (C) The permittee must state in the annual compliance certification that the tank has been operated with the cover in place 95 percent of the batch electrolytic process operating time and that at least 75 percent of the surface of the tank is covered for continuous electrolytic process tanks. [OAR340-216-0066(3)(c)]
- 83.d. For each plating tank subject to 40 CFR 63 Subpart WWWW, the permittee must implement the following applicable management practices as practicable, and these management practices must be implemented during all times that the plating tank or process is in operation [40 CFR 63.11507(g)]:
 - 83.d.i. Minimize bath agitation when removing any parts processed in the tank, as practicable except when necessary to meet part quality requirements;
 - 83.d.ii. Maximize draining of bath solution back into the tank by extending drip time when removing parts from the tank; using drain boards/drip shields; or withdrawing parts slowly from the tank;
 - 83.e.iii. Optimize the design of barrels, racks, and parts to minimize dragout of bath solution (such as by using slotted barrels and tilted racks, or by designing parts with flow-through holes to allow the tank solution to drip back into the tank);
 - 83.e.iv. Use tank covers whenever practicable;
 - 83.e.v. Minimize or reduce heating of process tanks;
 - 83.e.vi. Perform regular repair, maintenance, and preventive maintenance of racks, barrels, and other equipment;
 - 83.e.vii. Minimize bath contamination, such as through the prevention or quick recovery of dropped parts, use of distilled/de-ionized water, water filtration, pre-cleaning of parts to be plated, and thorough rinsing of pre-treated parts to be plated;
 - 83.e.viii. Maintain quality control of chemicals, and other bath ingredient concentrations in the tanks;
 - 83.e.ix. Practice good housekeeping such as regular sweeping/vacuuming, and periodic wash-downs;
 - 83.e.x. Minimize spills and overflow of tanks;
 - 83.e.xi. Use squeegee rolls in continuous or reel-to-reel plating tanks; and
 - 83.e.xii. Perform regular inspections to identify leaks and other opportunities for pollution prevention.
- 84. 40 CFR 63 Subpart WWWW Recordkeeping and Reporting requirements. The permittee must maintain the following records and make the following notifications, as applicable [40 CFR §63.11509]:
 - 84.a. The records specified in 40 CFR §63.10(b)(2)(i) through (iii) and (xiv) of the Subpart A General Provisions;
 - 84.b. Upon commencement of commercial operation of the affected sources subject to 40 CFR 63 Subpart WWWW, the permittee must submit the Initial Notification which includes a description of the compliance method used for each affected source to the EPA and DEQ [40 CFR §63.11509(a)(2) and (4)].
 - 84.c. A copy of an Initial Notification and Notification of Compliance Status that were submitted and all documentation supporting those notifications.
 - 84.d. For process units or operations subject to 40 CFR 63 Subpart WWWW, the occurrence and duration of each startup or shutdown when the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards.

- 84.e. An annual certification of compliance report prepared according to 40 CFR §63.11509(c)(1) through (7), prepared no later than January 31 of the year immediately following the reporting period and kept in a readily-accessible location for inspector review. These reports do not need to be submitted unless a deviation from the requirements of this subpart has occurred during the reporting year, in which case, the annual compliance report must be submitted to EPA and DEQ postmarked or delivered no later than January 31 of the year immediately following the reporting period, along with the deviation report. The deviation report must identify all deviations that occurred during the year along with the corrective action taken.
- 84.f. The occurrence and duration of each malfunction of operation (i.e. process equipment) or the required air pollution control and monitoring equipment. [OAR 340-216-0066(3)(c)]
- 84.g. All required maintenance performed on the air pollution control and monitoring equipment. [OAR 340-216-0066(3)(c)]
- 84.h. The records required to show continuous compliance with each management practice as applicable. [40 CFR §63.11509(e)(3)]