CHANDLER
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June 20, 2024

Kristin Mutolo
Intel Corporation
MS OC4-009
4500 South Dobson Road
Chandler, AZ 85248

Subject: Industrial User Permit, No. 009 Revision 01

Dear Ms. Mutolo,

Enclosed you will find the revised Industrial User Permit No. 009 Rev. 01 for the Intel Corporation (Permittee) facility.

This revised Industrial User Permit (Permit) shall become effective at 12:01 a.m. on **July 1, 2024 and expires at midnight on June 30, 2025**. In accordance with Section III.C. of the Pretreatment Program, the Permittee has twenty (20) days to submit written comments to the City of Chandler for reconsideration.

The Permit was revised to include the following changes and additions:

1. Permit issue and effective dates were changed on page 1.
2. Part I Section B & D – Discharge Limits and Monitoring Requirements
3. Attachment C – TTO Discharge Limit Combined Wastestream Calculations IWD-1, IWD-2, IWD-6, IWD-8, IWD-11, & IWD-12

Additionally, the permit cover page needs to be signed by an Authorized Representative or Duly Authorized Representative as defined in the Permit under Part IV.M. Signatory Requirements. A copy of the signed permit cover page should then be made and attached to the Permit. The original signed permit cover page should then be mailed back to the City.

Please note that this Permit replaces all other versions that may exist. If you have any questions regarding this Permit, or any other Pretreatment subject, please contact me at 480-782-3736, or the Wastewater Quality Division at 480-782-3720.

Respectfully,

Matthew Goodreau
Senior Industrial Waste Inspector
City of Chandler

Mailing Address
Mail Stop 396
P.O. Box 4008
Chandler, AZ 85244-4008

Wastewater Quality – Pretreatment
Public Works & Utilities
Telephone (480) 782-3720
Web www.chandleraz.gov

Location
905 E. Queen Creek Rd.
Chandler, AZ 85286

INDUSTRIAL USER PERMIT NO. 009 Rev. 01

Business Name: Intel Corporation

Premises Address:
4500 S. Dobson Road
Chandler, AZ 85248

Mailing Address:
Same

Based upon the permit application submitted on April 29, 2024 and in accordance with the provisions of the Clean Water Act, (33 U.S.C. 1251, et. seq.), the General Pretreatment Regulations [40 Code of Federal Regulations (CFR) Part 403], and the Program[1] as revised and adopted on November 4, 2013, by Ordinance No. 4503, and any amendments or supplements thereto, Intel Corporation (Permittee) is authorized to Discharge Wastewater into the City of Chandler (city) sanitary sewer system in accordance with the Discharge limitations, monitoring requirements, and other conditions set forth in this Permit.

It is understood by the Permittee that any violation of the Clean Water Act, Federal Pretreatment Standards, applicable state and/or local laws or regulations shall be cause for revocation of this Permit and suspension of sanitary sewer service as well as subjecting the Permittee to the remedies available to the City of Chandler under its Program and the Clean Water Act. **Copies of the Program and other applicable laws, ordinances, and regulations are available from the city for the convenience of Permittee. It is the Permittee's responsibility, however, to ensure compliance with applicable laws.**

This Permit replaces all previously issued Permits and shall become effective at 12:01 a.m. on **July 1, 2024** and expires at midnight on **June 30, 2025**.

Renewed: June 20, 2023

Revised: June 20, 2024; Rev. 01

Bhavika Bhakta
Utility Regulatory Affairs Senior Manager

A petition for review of the conditions and limitations contained in the Permit may be filed with the City of Chandler Pretreatment Supervisor, or authorized delegate, within twenty (20) calendar days of the receipt of this Permit as provided by Section III.C. 1-6 of the Program (see Part IV.A. of this Permit).

I acknowledge that I am a duly authorized representative of Intel Corporation as defined in this Permit under Part IV.M. Signatory Requirements. I further acknowledge that either myself or a delegated representative has read all the terms and provisions of this IU Permit and agree to abide by the conditions and limitations contained herein.

Name	Title	Date
	FSM OCEHS Manager	6/24/24

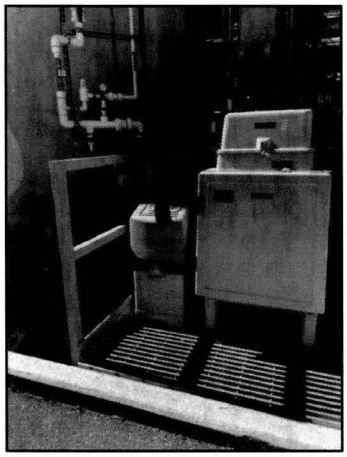
PART I - DISCHARGE LIMITS AND MONITORING (SAMPLING) REQUIREMENTS

A. The following process operations are conducted at the facility and result in the Discharge of Wastewater through the compliance sampling point described in Part I.B.:

Semiconductor Manufacturing (New Source 40 CFR Part 469.18 – Semiconductor Manufacturing)

B. Wastewater Discharges resulting from operations identified in Part I.A. of this Permit shall be Discharged into the City of Chandler POTW[1] through the compliance sampling point described as follows:

IWD-1: Sampling port on 12" Discharge pipe following the third stage of the Fab 12 AWN treatment system and located along the ground level, discharging to the Water Treatment and Recovery facility (WATR), then to the sanitary sewer.



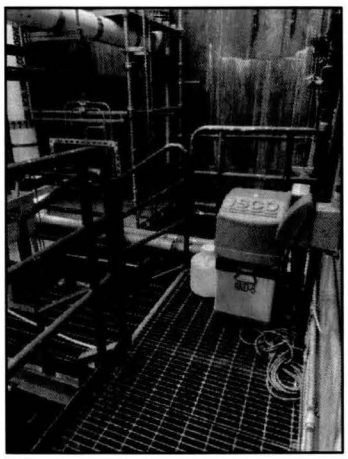
IWD-2: Sampling port on 12" Discharge pipe following the third stage of the Fab 12 SLW treatment system and located along the ground level, discharging to the Water Treatment and Recovery facility (WATR), then to the sanitary sewer.

[1] Unless otherwise noted all terms used in this Permit are capitalized and defined in Section I.C. of the Program.

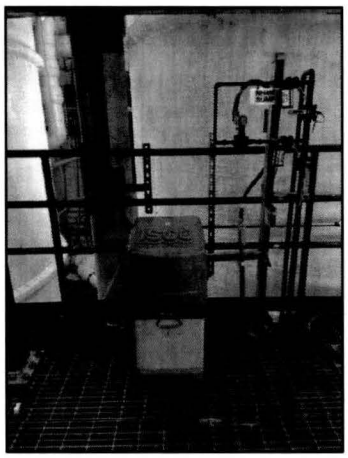
IWD-3: Parshall Flume located in a below ground level vault near Dobson Road at the East Sewer Outfall (ESO). This is a combined outfall location.

IWD-4: Parshall Flume located in a below ground level vault near Dobson Road at the North Sewer Outfall (NSO). This is a combined outfall location.

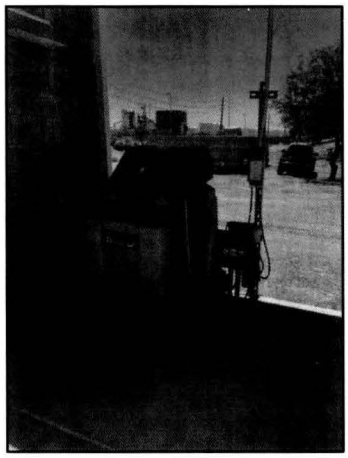
IWD-6: Sampling port on 12" Discharge pipe following the third stage of the Fab 32 AWN treatment system and located along the mezzanine level, discharging to the Water Treatment and Recovery facility (WATR), then to the sanitary sewer.



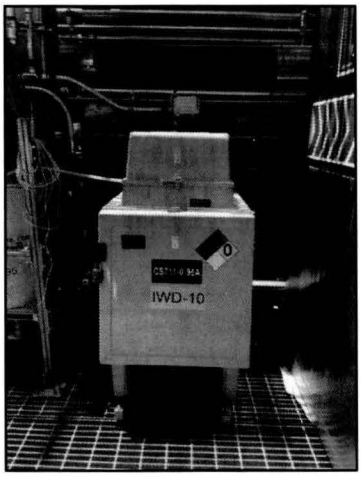
IWD-8: Sampling port on 12" Discharge pipe following the third stage of the Fab 22 AWN treatment system and located along the mezzanine level, discharging to the Water Treatment and Recovery Facility (WATR), then to the sanitary sewer.



IWD-9: Manhole over 42" Main Sewer Outfall (MSO) on the Northeast Corner of the Main Stormwater retention area. This is a combined outfall location.



IWD-10: Sampling port on 12" Discharge Pipe following PAWN phase 1 treatment located along the east side mezzanine level of the PAWN building, discharging to the sanitary sewer.



IWD-11: Sampling port on the constantly recirculated slip stream at the F42 AWN-A train effluent and located on the ground level, discharging to the Water Treatment and Recovery facility (WATR), then to sanitary sewer.

IWD-12: Sampling port on the constantly recirculated slip stream at the F42 AWN-B train effluent and located on the ground level, discharging to the Water Treatment and Recovery facility (WATR), then to sanitary sewer.

C. Permittee shall provide the city adequate access to the compliance sampling point(s).

D. Wastewater Discharged through the compliance sampling point (Part I.B.) must be sampled by the Permittee at the indicated minimum sampling frequency and shall not exceed the Discharge limitations set forth below that are derived from the more stringent Discharge limitation for the particular parameter contained in 40 CFR Part 469.18 and Section II.A.10. of the Program.

Discharge Limitations[2] and Sampling Requirements[3] at the IWD-1 Compliance Point

Parameter	Federal Limits		Minimum Sampling Frequency[4]	Sampling Method[9]
	Daily Maximum[8]	Monthly Average		
Total Toxic Organics (TTO)[5]	0.27[7]	N/A	2 / year	Composite[6]

2 Unless otherwise noted, all limitations are in concentration units of milligrams per liter (mg/L).

3 All sampling of the Discharge to evaluate compliance must be conducted at the compliance sampling point IWD-1, as described in Part I.B. and depicted in **Attachment A**.

4 A sample must be taken during the first six (6) months of the calendar year (January through June) and a sample must be taken in the second six (6) months of the calendar year (July through December). It is recommended that the samples be taken in January and July.

5 Monitoring for Total Toxic Organics (TTO) shall be performed for all toxic organics listed in **Attachment B**. The Permittee may request that the city allow a written certification in lieu of monitoring as permitted by the applicable Federal Categorical Standard.

6 The volatile toxic organic compounds may not be sampled with automatic sampling equipment (40 CFR Part 136) and shall be collected as Grab Samples.

7 TTO Discharge limit calculations for IWD-1 are included in **Attachment C**.

8 Since the dilute wastestreams that combine with the regulated process wastestreams at IWD-1 are episodic in nature, Intel Corporation has chosen not to track the Discharge of these wastestreams and has agreed to abide by the most stringent TTO Discharge limit that includes their worst-case dilute wastestreams.

9 Additional sampling requirements may be found in Part V- Special Conditions.

Discharge Limitations[2] and Sampling Requirements[3] at the IWD-2 Compliance Point

Parameter	Federal Limits		Minimum Sampling Frequency[4]	Sampling Method[9]
	Daily Maximum[8]	Monthly Average		
TTO[5]	1.36[7]	N/A	2 / year	Composite[6]

2 Unless otherwise noted, all limitations are in concentration units of milligrams per liter (mg/L).

3 All sampling of the Discharge to evaluate compliance must be conducted at the compliance sampling point IWD-2, as described in Part I.B. and depicted in **Attachment A**.

4 A sample must be taken during the first six (6) months of the calendar year (January through June) and a sample must be taken in the second six (6) months of the calendar year (July through December). It is recommended that the samples be taken in January and July.

5 Monitoring for TTO shall be performed for all toxic organics listed in **Attachment B**. The Permittee may request that the city allow a written certification in lieu of monitoring as permitted by the applicable Federal Categorical Standard.

6 The volatile toxic organic compounds may not be sampled with automatic sampling equipment (40 CFR Part 136) and shall be collected as Grab Samples.

7 TTO Discharge limit calculations for IWD-2 are included in **Attachment C**.

8 Since the dilute wastestreams that combine with the regulated process wastestreams at IWD-2 are episodic in nature, Intel Corporation has chosen not to track the Discharge of these wastestreams and has agreed to abide by the most stringent TTO Discharge limit that includes their worst-case dilute wastestreams.

9 Additional sampling requirements may be found in Part V- Special Conditions.

Discharge Limitations[2] and Sampling Requirements[3] at the IWD-3 Compliance Point

Parameter	Local Limits Daily Maximum[7] or Instantaneous Maximum[7]	Minimum Sampling Frequency[4]	Sampling Method[8]
Fluoride	10.0[5]	2 / year	Time Composite
Arsenic (Total)	0.22	2 / year	Time Composite
Boron (Total)	2.40	2 / year	Time Composite
Cadmium (Total	0.06	2 / year	Time Composite
Chromium (Total)	0.43	2 / year	Time Composite
Copper (Total)	1.50	2 / year	Time Composite
Cyanide (Total)	0.36	2 / year	Grab Sample
Lead (Total)	0.46	2 / year	Time Composite
Manganese (Total)	1.00	2 / year	Time Composite
Molybdenum (Total)	0.074	2 / year	Time Composite
Mercury (Total)	0.02	2 / year	Time Composite
Nickel (Total)	0.60	2 / year	Time Composite
Selenium (Total)	0.07	2 / year	Time Composite
Silver (Total)	0.30	2 / year	Time Composite
Zinc (Total)	9.00	2 / year	Time Composite
Oil & Grease	100.0	2 / year	Grab Sample
Chloroform	0.37	2 / year	Grab Sample
Total Suspended Solids (TSS)	*[6]	2 / year	Time Composite

2 Unless otherwise noted, all limitations are in concentration units of milligrams per liter (mg/L).

3 All sampling of the discharge to evaluate compliance must be conducted at the compliance sampling point IWD-3 described in Part I.B. and depicted in **Attachment A**.

4 A sample must be taken during the first six (6) months of the calendar year (January through June) and a sample must be taken in the second six (6) months of the calendar year (July through December). It is recommended that the samples be taken in January and July.

5 The Permittee is allowed to exceed this Discharge standard as long as BMP's relating to the Discharge of fluoride are followed and included in their IU Permit.

6 The Total Suspended Solids (TSS) mass limitation is in pounds/day. The combined mass of TSS Discharged from all compliance points (IWD-3, IWD-4, and IWD-9) may not exceed **10,200 pounds/day**.

7 The combined outfall calculations used to determine compliance with these city Discharge concentration and mass standards at the IWD-3, IWD-4 and IWD-9 compliance points are included in **Attachment D**.

8 Additional sampling requirements may be found in Part V - Special Conditions.

Discharge Limitations[2] and Sampling Requirements[3] at the IWD-4 Compliance Point

Parameter	Local Limits Daily Maximum[7] or Instantaneous Maximum[7]	Minimum Sampling Frequency[4]	Sampling Method[8]
Fluoride	10.0[5]	2 / year	Time Composite
Arsenic (Total)	0.22	2 / year	Time Composite
Boron (Total)	2.40	2 / year	Time Composite
Cadmium (Total	0.06	2 / year	Time Composite
Chromium (Total)	0.43	2 / year	Time Composite
Copper (Total)	1.50	2 / year	Time Composite
Cyanide (Total)	0.36	2 / year	Grab Sample
Lead (Total)	0.46	2 / year	Time Composite
Manganese (Total)	1.00	2 / year	Time Composite
Molybdenum (Total)	0.074	2 / year	Time Composite
Mercury (Total)	0.02	2 / year	Time Composite
Nickel (Total)	0.60	2 / year	Time Composite
Selenium (Total)	0.07	2 / year	Time Composite
Silver (Total)	0.30	2 / year	Time Composite
Zinc (Total)	9.00	2 / year	Time Composite
Oil & Grease	100.0	2 / year	Grab Sample
Chloroform	0.37	2 / year	Grab Sample
TSS	*[6]	2 / year	Time Composite

[2] Unless otherwise noted, all limitations are in concentration units of milligrams per liter (mg/L).

[3] All sampling of the discharge to evaluate compliance must be conducted at the compliance sampling point IWD-4 described in Part I.B. and depicted in **Attachment A**.

[4] A sample must be taken during the first six (6) months of the calendar year (January through June) and a sample must be taken in the second six (6) months of the calendar year (July through December). It is recommended that the samples be taken in January and July.

[5] The Permittee is allowed to exceed this Discharge standard as long as BMP's relating to the Discharge of fluoride are followed and included in their IU Permit.

[6] The TSS mass limitation is in pounds/day. The combined mass of TSS Discharged from all compliance points (IWD-3, IWD-4, and IWD-9) may not exceed **10,200 pounds/day**.

[7] The combined outfall calculations used to determine compliance with these city Discharge concentration and mass standards at the IWD-3, IWD-4 and IWD-9 compliance points are included in **Attachment D**.

[8] Additional sampling requirements may be found in Part V - Special Conditions.

Discharge Limitations[2] and Sampling Requirements[3] at the IWD-6 Compliance Point

Parameter	Federal Limits		Minimum Sampling Frequency[4]	Sampling Method[9]
	Daily Maximum[8]	Monthly Average		
TTO[5]	1.19[7]	N/A	2 / year	Composite[6]

2 Unless otherwise noted, all limitations are in concentration units of milligrams per liter (mg/L).

3 All sampling of the Discharge to evaluate compliance must be conducted at the compliance sampling point IWD-6, as described in Part I.B. and depicted in **Attachment A**.

4 A sample must be taken during the first six (6) months of the calendar year (January through June) and a sample must be taken in the second six (6) months of the calendar year (July through December). It is recommended that the samples be taken in January and July.

5 Monitoring for TTO shall be performed for all toxic organics listed in **Attachment B**. The Permittee may request that the City allow a written certification in lieu of monitoring as permitted by the applicable Federal Categorical Standard.

6 The volatile toxic organic compounds may not be sampled with automatic sampling equipment (40 CFR Part 136) and shall be collected as Grab Samples.

7 TTO Discharge limit calculations for IWD-6 are included in **Attachment C**.

8 Since the dilute wastestreams that combine with the regulated process wastestreams at IWD-6 are episodic in nature, Intel Corporation has chosen not to track the Discharge of these wastestreams and has agreed to abide by the most stringent TTO Discharge limit that includes their worst-case dilute wastestreams.

9 Additional sampling requirements may be found in Part V- Special Conditions.

Discharge Limitations[2] and Sampling Requirements[3] at the IWD-8 Compliance Point

Parameter	Federal Limits		Minimum Sampling Frequency[4]	Sampling Method[9]
	Daily Maximum[8]	Monthly Average		
TTO[5]	0.77[7]	N/A	2 / year	Composite[6]

2 Unless otherwise noted, all limitations are in concentration units of milligrams per liter (mg/L).

3 All sampling of the Discharge to evaluate compliance must be conducted at the compliance sampling point IWD-8, as described in Part I.B. and depicted in **Attachment A**.

4 A sample must be taken during the first six (6) months of the calendar year (January through June) and a sample must be taken in the second six (6) months of the calendar year (July through December). It is recommended that the samples be taken in January and July.

5 Monitoring for TTO shall be performed for all toxic organics listed in **Attachment B**. The Permittee may request that the City allow a written certification in lieu of monitoring as permitted by the applicable Federal Categorical Standard.

6 The volatile toxic organic compounds may not be sampled with automatic sampling equipment (40 CFR Part 136) and shall be collected as Grab Samples.

7 TTO Discharge limit calculations for IWD-8 are included in **Attachment C**.

8 Since the dilute wastestreams that combine with the regulated process wastestreams at IWD-8 are episodic in nature, Intel Corporation has chosen not to track the Discharge of these wastestreams and has agreed to abide by the most stringent TTO Discharge limit that includes their worst-case dilute wastestreams.

9 Additional sampling requirements may be found in Part V- Special Conditions.

Discharge Limitations[2] and Sampling Requirements[3] at the IWD-9 Compliance Point

Parameter	Local Limits Daily Maximum[7] or Instantaneous Maximum[7]	Minimum Sampling Frequency[4]	Sampling Method[10]
Fluoride	10.0[5]	2 / year	Time Composite
Arsenic (Total)	0.22	2 / year	Time Composite
Boron (Total)	2.40	2 / year	Time Composite
Cadmium (Total	0.06	2 / year	Time Composite
Chromium (Total)	0.43	2 / year	Time Composite
Copper (Total)	1.50	2 / year	Time Composite
Cyanide (Total)	0.36	2 / year	Grab Sample
Lead (Total)	0.46	2 / year	Time Composite
Manganese (Total)	1.00	2 / year	Time Composite
Molybdenum (Total)	0.074	2 / year	Time Composite
Mercury (Total)	0.02	2 / year	Time Composite
Nickel (Total)	0.60	2 / year	Time Composite
Selenium (Total)	0.07	2 / year	Time Composite
Silver (Total)	0.30	2 / year	Time Composite
Zinc (Total)	9.00	2 / year	Time Composite
Oil & Grease	100.0	2 / year	Grab Sample
Chloroform	0.37	2 / year	Grab Sample
TSS	*[6]	2 / year	Time Composite
pH	≥ 5.0 to ≤ 12.5[9]	Continuous	On-line pH meter[8]

2 Unless otherwise noted, all limitations are in concentration units of milligrams per liter (mg/L).

3 All sampling of the discharge to evaluate compliance must be conducted at the compliance sampling point IWD-9 described in Part I.B. and depicted in **Attachment A**.

4 A sample must be taken during the first six (6) months of the calendar year (January through June) and a sample must be taken in the second six (6) months of the calendar year (July through December). It is recommended that the samples be taken in January and July.

5 The Permittee is allowed to exceed this Discharge standard as long as BMP's relating to the Discharge of fluoride are followed and included in their IU Permit.

6 The TSS mass limitation is in pounds/day. The combined mass of TSS Discharged from all compliance points (IWD-3, IWD-4, and IWD-9) may not exceed **10,200 pounds/day**.

7 The combined outfall calculations used to determine compliance with these city Discharge concentration and mass standards at the IWD-3, IWD-4 and IWD-9 compliance points are included in **Attachment D**.

8 The pH meter used to obtain the pH reading required in this section must be calibrated using at least two pH buffers (two-point calibration). The pH buffers (4, 7 and 10) used for calibration should be in the range of the expected pH.

9 This limit is instantaneous and shall in no case have a pH lower than 5.0 or greater than 12.5.

10 Additional sampling requirements may be found in Part V- Special Conditions.

Discharge Limitations[2] and Sampling Requirements[3] at the IWD-10 Compliance Point

Parameter	Federal Limits		Minimum Sampling Frequency[4]	Sampling Method[9]
	Daily Maximum	Monthly Average		
TTO[5]	1.37	N/A	2 / year	Composite[6]

2 Unless otherwise noted, all limitations are in concentration units of milligrams per liter (mg/L).

3 All sampling of the Discharge to evaluate compliance must be conducted at the compliance sampling point IWD-10, as described in Part I.B. and depicted in **Attachment A**.

4 A sample must be taken during the first six (6) months of the calendar year (January through June) and a sample must be taken in the second six (6) months of the calendar year (July through December). It is recommended that the samples be taken in January and July.

5 Monitoring for TTO shall be performed for all toxic organics listed in **Attachment B**. The Permittee may request that the city allow a written certification in lieu of monitoring as permitted by the applicable Federal Categorical Standard.

6 The volatile toxic organic compounds may not be sampled with automatic sampling equipment (40 CFR Part 136) and shall be collected as Grab Samples.

7 Additional sampling requirements may be found in Part V- Special Conditions.

Discharge Limitations[2] and Sampling Requirements[3] at the IWD-11 Compliance Point

Parameter	Federal Limits		Minimum Sampling Frequency[4]	Sampling Method[9]
	Daily Maximum[8]	Monthly Average		
TTO[5]	0.68[7]	N/A	2 / year	Composite[6]

2 Unless otherwise noted, all limitations are in concentration units of milligrams per liter (mg/L).

3 All sampling of the Discharge to evaluate compliance must be conducted at the compliance sampling point IWD-11, as described in Part I.B. and depicted in **Attachment A**.

4 A sample must be taken during the first six (6) months of the calendar year (January through June) and a sample must be taken in the second six (6) months of the calendar year (July through December). It is recommended that the samples be taken in January and July.

5 Monitoring for TTO shall be performed for all toxic organics listed in **Attachment B**. The Permittee may request that the city allow a written certification in lieu of monitoring as permitted by the applicable Federal Categorical Standard.

6 The volatile toxic organic compounds may not be sampled with automatic sampling equipment (40 CFR Part 136) and shall be collected as Grab Samples.

7 TTO Discharge limit calculations for IWD-11 are included in **Attachment C**.

8 Since the dilute wastestreams that combine with the regulated process wastestreams at IWD-11 are episodic in nature, Intel Corporation has chosen not to track the Discharge of these wastestreams and has agreed to abide by the most stringent TTO Discharge limit that includes their worst-case dilute wastestreams.

9 Additional sampling requirements may be found in Part V- Special Conditions.

Discharge Limitations[2] and Sampling Requirements[3] at the IWD-12 Compliance Point

Parameter	Federal Limits		Minimum Sampling Frequency[4]	Sampling Method[9]
	Daily Maximum[8]	Monthly Average		
TTO[5]	0.73[7]	N/A	2 / year	Composite[6]

2 Unless otherwise noted, all limitations are in concentration units of milligrams per liter (mg/L).

3 All sampling of the Discharge to evaluate compliance must be conducted at the compliance sampling point IWD-12, as described in Part I.B. and depicted in **Attachment A**.

4 A sample must be taken during the first six (6) months of the calendar year (January through June) and a sample must be taken in the second six (6) months of the calendar year (July through December). It is recommended that the samples be taken in January and July.

5 Monitoring for TTO shall be performed for all toxic organics listed in **Attachment B**. The Permittee may request that the city allow a written certification in lieu of monitoring as permitted by the applicable Federal Categorical Standard.

6 The volatile toxic organic compounds may not be sampled with automatic sampling equipment (40 CFR Part 136) and shall be collected as Grab Samples.

7 TTO Discharge limit calculations for IWD-12 are included in **Attachment C**.

8 Since the dilute wastestreams that combine with the regulated process wastestreams at IWD-12 are episodic in nature, Intel Corporation has chosen not to track the Discharge of these wastestreams and has agreed to abide by the most stringent TTO Discharge limit that includes their worst-case dilute wastestreams.

9 Additional sampling requirements may be found in Part V- Special Conditions.

E. The combined flow volume of Discharges from all the outfall compliance points (IWD-3, IWD-4, and IWD-9) shall not exceed **13.5 Million Gallons per Day (MGD)** using a calculated 90-day moving average.

F. Definitions

1. **Best Management Practices (BMP)** – means schedules of activities, prohibitions of practices, maintenance procedures, or other management practices to satisfy Pretreatment Requirements. BMP's may include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw materials storage.

2. **Biochemical Oxygen Demand (BOD)** – means the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures – five (5) days at 20 degrees centigrade (°C) – expressed in terms of concentration.

3. **Bypass** – means the intentional diversion of Wastewater from any portion of an IU's apparatus or control mechanism to treat Wastewater prior to Discharge.

4. **Categorical Standards** – means any Federal Pretreatment standard adopted pursuant to 33 USC 1317(b) or (c) -- as codified under 40 CFR Part Chapter 1 Subchapter N Parts 401-471.

5. **Compliance Sample** – means any sample for a Pollutant for which a Discharge standard or prohibition is identified in the Program that is collected at a specified compliance sampling point and analyzed by an United States Environmental Protection Agency (EPA) approved method pursuant to 40 CFR Part 136.

6. **Composite Sample** – means a combination of at least four (4) Grab Samples obtained at regular intervals (based on either flow or time) during normal operations or a 24-hour period on any calendar day. Each Grab Sample is either combined with the others or analyzed individually and the results averaged so as to be representative of the Discharge during the entire Discharge period.

7. **Daily Maximum** – means the average maximum concentration of a Pollutant allowed to be Discharged on any calendar day, as determined by the analysis of all Grab Samples collected at a specified compliance sampling point during normal operations. If only one Grab Sample has been taken, that Grab Sample becomes the Daily Maximum (as well as the Instantaneous Maximum). A Composite Sample, by definition, becomes the Daily Maximum for the calendar day in which it is collected.

8. **Grab Sample** – means an individual sample for a Pollutant that is collected in less than fifteen (15) minutes without regard for flow or time of day.

9. **Immediately** – means as soon as possible, but in no event more than twenty-four (24) hours.

10. **Industrial Discharge** – means any Discharge into a POTW other than a Residential Discharge.

11. **Industrial User (IU)** – means a Person who:

    (a) Causes an Industrial Discharge;

(b) Has control over the disposal of any Pollutant which ultimately becomes all or part of any Industrial Discharge; or

(c) Has the right of possession and control over any property from which an Industrial Discharge is made.

12. **Instantaneous Maximum** – means the maximum concentration of a Pollutant allowed to be Discharged at any time determined from the analysis of a Grab Sample collected at a specified compliance sampling point.

13. **Monthly Average** – means the average of the values of all Compliance Samples collected over a calendar month for a Pollutant. The Monthly Average may be either the average of all Grab Samples taken in a given calendar month, or the average of all Composite Samples taken in a given calendar month.

14. **Pollutant** – means any dredged spoil, solid waste, hazardous waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical waste, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, dirt, Industrial Waste, municipal or agricultural waste and any other substances subject to a Pretreatment Requirement.

15. **Pretreatment** – means the physical, chemical, biological, or other treatment of any Industrial Discharge, prior to Discharge to a POTW, for the purpose of:

    (a) Reducing the amount or concentration of any Pollutant;

    (b) Eliminating the Discharge of any Pollutant; or

    (c) Altering the nature of any Pollutant characteristic to a less harmful state.

16. **Pretreatment Requirement** – means compliance with all Discharge standards and prohibitions set forth in the Program including, without limitation, Categorical Standards, and all of the other duties or responsibilities imposed upon the IU under the Program or any order or Permit issued pursuant to the Program.

17. **Program** – means the City of Chandler Wastewater Pretreatment Program as adopted by Ordinance No. 4503.

18. **Publicly Owned Treatment Works (POTW)** – means the sewage treatment work(s) and connecting sewer connection system(s), which are owned and/or operated, in whole or in part, by the city and which provide the city with Wastewater collection, treatment and disposal services.

19. **Residential Discharge** – means a Discharge into a POTW of Sanitary Waste produced entirely from either a single or multi-family dwelling or any other facility, not utilized for any industrial or manufacturing process that the Director determines will produce a wastestream substantially identical to that produced by a single or multi-family dwelling.

20. **Sanitary Waste** – means any liquid or waterborne wastes derived from ordinary living processes, free from Industrial Wastes, and of such a character as to not require any special treatment or Pretreatment under the Program before being Discharged into a POTW.

21. **Significant Industrial User (SIU)** – means:

    (a) An IU subject to any Categorical Standard; or

    (b) Any other IU that:

        (i) Discharges an average of twenty-five thousand (25,000) gallons per day or more of Wastewater to a POTW (excluding Sanitary Wastes and noncontact cooling and boiler blowdown Wastewaters);

        (ii) Contributes a flow of Wastewater which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of a POTW; or

        (iii) Is designated as such by the Director on the basis that it has a reasonable potential for adversely affecting a POTW's operation or for violating any Pretreatment Requirement.

22. **Significant NonCompliance (SNC)** – means violations of Section II of the Program, which meet one or more of the following criteria:

    (a) Chronic violations of any Discharge limits, defined here as those in which sixty-six percent (66%) or more of all of the measurements taken for the same Pollutant during a six (6) month period exceed (by any magnitude) the Daily Maximum, Instantaneous Maximum or Monthly Average for that Pollutant;

    (b) TRC violations, defined here as those in which thirty-three percent (33%) or more of all of the measurements taken for the same Pollutant during a six (6) month period equal or exceed the product of the Daily Maximum, Instantaneous Maximum or Monthly Average for that Pollutant multiplied by the applicable TRC (TRC = 1.4 for BOD, TSS, fats, oil, and grease, and 1.2 for all other Pollutants except pH);

    (c) Any other violation that the Director determines has, alone or in combination with other Discharges, caused Interference or Pass Through or endangered the health of POTW personnel or the public;

    (d) Any Discharge of a Pollutant that has caused imminent endangerment to human health or welfare or to the environment, and has resulted in the Director's exercise of his or her emergency authority to halt or prevent such a Discharge;

    (e) Violations of Compliance Schedule milestones contained in a SIU Permit or enforcement order, for starting construction, completing construction, or obtaining final compliance, by ninety (90) calendar days or more after the scheduled date for that milestone;

    (f) Failure to provide reports for Compliance Schedules, self-monitoring data and applicable Pretreatment Requirements within forty-five (45) calendar days from the due date;

    (g) Failure to accurately report non-compliance; or

    (h) Any other violation or group of violations of the Act, the Program or the conditions of any Permit or order issued pursuant to the Program, including a violation of BMP's that the Director determines to be significant.

23. **Slug Discharge** – means any Discharge of a non-routine, episodic nature including, but not limited to, an accidental spill or a non-customary Batch Discharge, which has a reasonable potential to cause Interference or Pass Through, or in any other way violate the Program or any Permit issued pursuant to the Program.

24. **Total Suspended Solids (TSS)** – means the total suspended matter that floats on the surface of, or is suspended in, Wastewater.

25. **Upset** – means an exceptional incident in which there is an unintentional and temporary violation of a Pretreatment Requirement because of factors beyond the reasonable control of the IU. An Upset does not include a violation caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

26. **Wastewater** – means any liquid, or any combination of water-carried Pollutant(s), which is Discharged into a POTW from any dwelling, commercial building, industrial facility, or institution together with such ground, surface, and storm water as may be present.

PART II – DISCHARGE PROHIBITIONS

A. No IU shall Discharge to a POTW any Pollutant or Wastewater, which will cause Pass Through or Interference. Such Discharge prohibitions include, but are not limited to, the types of Discharges which are set forth below.

1. Flow and Concentration. Discharges that are released at a flow rate and/or Pollutant concentration which will cause Interference.

2. Fire and Explosion Potential. Discharges that create a fire or explosion hazard to a POTW including, but not limited to, Discharges with a closed cup flashpoint of less than 60°C (140°F) using the test methods specified in 40 CFR Part 261.21.

3. Viscous Substances. Discharges that contain any solid or viscous substances in amounts, which will obstruct Wastewater, flow in any POTW resulting in Interference.

4. Corrosiveness. Discharges that will cause corrosive structural damage to a POTW. In no case shall a Discharge to a POTW have a pH lower than 5.0 or greater than 12.5, unless the city determines that a POTW is specifically designed to accommodate such Discharges.

5. Heat. Discharges that will inhibit biological activity in any POTW sewage treatment works resulting in Interference. In no case shall a Discharge cause heat in such quantities that the temperature at any POTW treatment works exceeds 40°C (104°F) unless the city determines that alternate temperature limits are appropriate.

6. Slug Discharge. Discharges that constitute or contain any Slug Discharge.

7. Noxious Substances. Discharges that contain any noxious or malodorous liquids, gases or solids which, either singly or by interaction with other substances, will create a public nuisance, a hazard to life, prevent entry into a POTW for maintenance and repair purposes or otherwise cause acute worker health and safety problems.

8. Dilution. Discharges that have in any way been diluted as a substitute for Pretreatment for the purpose of obtaining compliance with any Pretreatment Requirement imposed by the Program. However, Dilution is allowed to the extent that it is expressly authorized by any applicable Categorical Standard.

9. Rainwater. Discharges that consist of unpolluted rainwater run-off or single pass cooling water unless no other disposal option is feasible and the Discharge is expressly approved by the city prior to Discharge.

10. Local Limits. Discharges that exceed the Daily Maximum or Instantaneous Maximum limits specified below for the following substances[1]:

Parameter	Limitation (mg/L)	Sampling Method
Arsenic (Total)	0.22	Composite
Boron (Total)	2.40	Composite
Cadmium (Total)	0.06	Composite
Chloroform	0.37	Grab
Chromium (Total)	0.43	Composite
Copper (Total)	1.50	Composite
Cyanide (Total)	0.36	Grab
Lead (Total)	0.46	Composite
Manganese (Total)	1.00	Composite
Mercury (Total)	0.02	Composite
Molybdenum (Total)	0.074	Composite
Nickel (Total)	0.60	Composite
Selenium (Total)	0.07	Composite
Silver (Total)	0.30	Composite
Zinc (Total)	9.00	Composite
Oil & Grease	100.0	Grab
Fluoride	10.0[2]	Composite

[1] The Permittee is not required to self-monitor for these parameters at their compliance sampling locations unless specifically listed on Part I of this Permit. However, the city may monitor quarterly for all these city parameters to determine compliance.

[2] Unless the IU is in compliance with a Fluoride BMP pursuant to Section II.E.1 of the Program.

11. Categorical Standards. Discharges that will cause the violation of any applicable Categorical Standard.

12. Pumped Wastes. Discharges of Pollutants that are transported to a POTW by any septic tank pumper, chemical waste hauler or similar transporter except at specified Discharge points, if any, designated by the city.

13. Toxic Materials. Discharges that are a toxic or poisonous substance in a sufficient amount to either cause Interference or constitute an acute hazard to humans or animals in the receiving stream.

14. Oil Products. Discharges that contain petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause Interference or Pass Through.

B. BOD, TSS and Ammonia Levels

1. Pollutant Charges

IU's exceeding the TSS, BOD, or ammonia surcharge levels set forth below shall pay the fee provided in Section 50-13, Chandler city Code:

(a) 350.00 mg/L TSS;
(b) 300.00 mg/L BOD; or
(c) 35.00 mg/L ammonia.

2. BOD Trigger Level

If an SIU is currently Discharging or proposes to Discharge more than 63 lbs./day of BOD, the city shall set an individual mass based BOD limit in the SIU Permit. The city shall set the BOD limit considering the following factors:

(a) The existing BOD loading; and
(b) The future, additional BOD loading anticipated from IUs, SIUs and Residential Discharges at the POTW that will receive Discharges from that SIU.

3. TSS Trigger Level

If an SIU is currently Discharging or proposes to Discharge more than 73 lbs./day of TSS, the city shall set an individual mass based TSS limit in the SIU Permit. The city shall set the TSS limit considering the following factors:

(a) The existing TSS loading; and
(b) The future, additional TSS loading anticipated from IUs, SIUs and Residential Discharges at the POTW that will receive Discharges from that SIU.

PART III - REPORTING REQUIREMENTS

A. Compliance Monitoring Report

1. All reporting (including written notifications and compliance monitoring reports) required by this Permit shall, unless otherwise specified, be addressed to:

City of Chandler
Wastewater Quality Division
Industrial Pretreatment Program
Mail Stop 396
P. O. Box 4008
Chandler, Arizona 85244-4008

During normal business hours (8:00 am - 5:00 pm) the City of Chandler, Wastewater Quality Division should be notified by telephone at (480) 782-3720, or by facsimile (FAX) at (480) 782-3735.

2. Each submitted compliance monitoring report must be signed in accordance with the requirements set forth in Part IV.M. of this Permit.

3. Permittee shall submit a SIU Self-Monitoring Report no less than twice annually pursuant to Section II.L.9.(d) and (e) of the Program. These reports shall be submitted by January 15th for the July through December reporting period, and July 15th for the January through June reporting period.

4. The Self-Monitoring Reports required above shall contain the results of sampling and analysis of all Pollutants and Wastewater Discharged, including the flow and the nature, and the concentration of Pollutants required by this Permit. Both maximum and average daily flows shall be reported for each reporting period. Unless otherwise specified by the city, maximum and average daily flows may be estimated. At the discretion of the city, more detailed reporting of flows may be required. The results of all Compliance Samples taken during any reporting period shall be summarized and reported by the due dates mentioned above.

5. If Permittee monitors for a Pollutant during a reporting period more frequently than required by this Permit at a compliance sampling point, using test procedures approved under 40 CFR Part 136, then the results of such monitoring shall be included in the report submitted for that reporting period or at the frequency required pursuant to this Permit. A required increase in the frequency of reporting may be found in Part V - Special Conditions. Such increased monitoring frequency shall also be noted on the report.

6. Written reports will be deemed to have been submitted on the date postmarked. For reports that are not mailed, the date of receipt of the report shall govern.

B. Monitoring and Records

1. All IU Compliance Samples shall be taken at the compliance sampling point(s) specified in this Permit. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored Discharge and shall consist of the following:

a. Grab Samples must be used for pH, cyanide, oil and grease, ammonia, and volatile organic compounds. For all other Pollutants, 24-hour Composite Samples must be obtained through flow-proportional Composite Sampling techniques, unless time-proportional Composite Sampling or Grab Sampling is authorized by the city.

b. Where time-proportional Composite Sampling or Grab Sampling is authorized by the city, the samples must be representative of the Discharge and the decision to allow the alternative sampling must be documented in the IU file for that facility or facilities.

c. Using protocols (including appropriate preservation) specified in 40 CFR Part 136 and appropriate EPA guidance, multiple Grab Samples collected during a 24-hour period may be composited prior to the analysis as follows: for cyanide and ammonia the samples may be composited in the laboratory or in the field; for volatile organics and oil and grease the samples may be composited in the laboratory. Composite samples for other parameters unaffected by the compositing procedures as documented in approved EPA methodologies may be authorized by the city, as appropriate.

2. Sampling and Flow Monitoring Equipment

The city may require the SIU to install monitoring equipment as necessary. Any required sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the SIU at its own expense. All equipment used to measure Wastewater flow shall be maintained and calibrated in accordance with the manufacturer's recommendation, but such calibration shall occur no less than annually.

3. Maintenance of Sampling and Flow Monitoring Equipment

All Wastewater samples must be representative of the SIU Discharge. Wastewater monitoring and flow measurement equipment shall be properly operated, kept clean, and maintained in good working order at all times. The failure of a SIU to keep its monitoring equipment in good working order shall not be grounds for the SIU to claim that sample results are not representative of its Discharge.

4. Analytical Methods to Demonstrate Continued Compliance

The analysis of all Compliance Samples shall be performed in accordance with procedures established under the Program and 40 CFR Part 136, or with any other test procedures approved by the EPA. Where 40 CFR Part 136 does not include sampling or analytical techniques for the Pollutants in question, or where the EPA determines that the Part 136 sampling and analytical techniques are inappropriate for the Pollutant in question, sampling and analyses shall be performed using validated analytical methods.

5. Retention of Records

Each IU shall maintain all applicable records regarding compliance with the Program for a minimum period of three (3) years and such records shall be made available for inspection and copying by the city upon request.

6. Sampling Record Contents

   These reports must be based upon data obtained through appropriate sampling and analysis performed during the period covered by the report, which data are representative of conditions occurring during the reporting period.

   Sampling Records information shall include:

   a. The date, exact place, method of sampling, sample preservation techniques or procedures, time of sampling and the names of the Person or Persons taking the samples;

   b. The date(s) analyses were performed;

   c. The name of laboratory and/or Person who performed the analyses;

   d. The analytical techniques/methods used;

   e. The results of each analyses; and

   f. A copy of chain of custody documentation from the sampling event.

C. Notice of Violation

Permittee shall notify the Wastewater Quality Division Immediately upon becoming aware of any violation of this Permit or Program. For Discharge violations, such notice shall be provided to the city Immediately after the Permittee's receipt of analytical sampling results. This notification shall be followed within five (5) calendar days by a detailed written statement describing the:

1. Location of the Discharge;

2. Known or estimated nature, concentration, and volume of the Discharged Pollutant(s);

3. Causes of the Discharge; and

4. Duration of the Discharge, including exact dates and times of the start and end of the Discharge violation;

5. Corrective action(s) undertaken, being undertaken and/or to be undertaken by the Permittee. The Permittee causing such a Discharge shall also initiate all appropriate corrective action(s), which are needed to:

   a. Prevent any further injury to human health or safety, or to the environment, a POTW, or any other property;

   b. Promptly assess, mitigate, repair, restore or remediate all or part of any injury or damage caused by such Discharge; and

   c. Prevent a future occurrence.

Such notification shall not relieve the Permittee of liability for any expense, loss or damage to a POTW, or for any fines or penalties imposed on the city on account thereof and/or for any enforcement action pursuant to this occurrence.

D. Automatic Resampling

1. If a Discharge violation relates to a Compliance Sample taken by either the Permittee or the city, the Permittee shall repeat the sampling and analysis establishing the violation and submit, in writing, the results of the second analysis within thirty (30) calendar days of becoming aware of the violation. This paragraph does not apply to a violation of the pH standards set forth in Section II.A.4. of the Program when the Permittee continuously monitors for pH pursuant to Section II.D. of the Program.

2. The Permittee is not required, unless specifically ordered by the city, to resample if the city obtained a sample at the same Discharge point for the same Pollutant(s) between the time the Permittee performed its sampling and the time the Permittee receives the results of the sampling.

PART IV - STANDARD CONDITIONS

A. Petitions for Reconsideration (Section III.C.1-6 of the Program)

1. Any Permit applicant or Permittee (aggrieved party) may petition the city to reconsider the conditions and limitations of a Permit issued or amended pursuant to the Program or the failure to issue or modify a Permit as requested, by filing a written petition for review with the city within twenty (20) calendar days of receipt of the Permit or amended Permit. In its petition, the aggrieved party must identify the Permit provisions objected to, specify in detail the reasons for objection, and present the alternative condition(s), if any, it seeks to place in the Permit. A petition for review shall not be deemed to authorize a SIU to Discharge without first obtaining a SIU Permit.

2. An IU may petition the city to reconsider an administrative finding of violation, an action taken or proposed to be taken relating to a violation or an order issued by the city relating to a violation by filing a written petition for review with the city within twenty (20) calendar days of receipt of notice of any finding, order or action taken or to be taken by the city. In its petition, the IU must identify the specific findings, order provisions or proposed activities objected to, specify in detail the reasons for, and basis of, the objection and present alternative findings, provisions or activities, if any, that should be substituted for those proposed by the city.

3. Failure to submit a timely petition for review shall be deemed to be a waiver of the IU review rights under this subsection.

4. If the city fails to act within thirty (30) calendar days from receipt of the petition, it shall be deemed denied. Decisions not to reconsider, or modifications made to any findings, order provisions, or proposed activities resulting from the review process, shall be considered final administrative actions for purposes of judicial review.

5. An IU seeking judicial review of a final decision may file a complaint with the Superior Court for Maricopa County, Arizona. In the absence of a Court Order to the contrary, final decisions made by the city shall not be stayed pending judicial review.

6. This subsection shall not be construed to in any way alter, modify, or affect the city's ability to pursue enforcement action pursuant to Sections III.B.11. and 12. of the Program.

B. Adverse Impact

Each IU shall take all reasonable steps to minimize or correct any adverse impact to a POTW or the environment resulting from any non-compliance with the Act, the Program or the provisions of any SIU Permit issued, including such accelerated or additional monitoring as necessary to determine the nature and impact of any non-complying Discharge to a POTW. Upon reduction of efficiency of operations, or loss or failure of all or part of an IU's Pretreatment capabilities, each IU shall control its operations or Discharges (or both) until the IU's Pretreatment capabilities are restored or an adequate alternative method of Pretreatment is provided.

C. Cooperation

Each IU shall assist the city to determine the exact nature, concentration, and volume of any Pollutant or Wastewater intended for Discharge to the POTW. Therefore, upon request, the IU shall promptly:

1. Allow the examination and copying of all relevant records or documents available to the IU;

2. Allow the inspection of all business locations served by a POTW, including all Pretreatment equipment, methods and activities utilized by the IU at such locations;

3. Install and maintain, at the IU's expense, convenient and adequate monitoring, and/or sampling point(s) needed by the city for monitoring and/or sampling purposes;

4. Allow the taking and removal of samples from any Wastewater; and

5. Provide the city with any other information, including but not limited to chemical analyses of Wastewater and architectural or engineering design data and drawings etc., which are reasonably needed by the city for the purpose of determining such IU's compliance with the Program.

D. Permit Action

1. Revoke or Suspend Permits

   This Permit may be revoked or suspended for good cause, including, but not limited to:

   a. Misrepresentation or failure to fully disclose all relevant facts in a Permit application;

   b. Falsifying self-monitoring reports;

   c. Tampering with monitoring equipment;

   d. Refusing to allow the city timely access to the facility premises and records;

   e. Failure to meet Discharge limitations;

f. Failure to pay fines and penalties;

g. Failure to pay fees;

h. Failure to meet Compliance Schedules; or

i. Violation of any applicable Pretreatment Requirement.

2. Modify or Amend Permits

This Permit may be modified or amended for good cause, including, but not limited to:

a. Reflect relevant changes to the Act or the Program;

b. Reflect the results of sampling performed pursuant to the Act, the Program, or any Permit issued thereunder;

c. Prevent endangerment to the environment or to the health or welfare of any Person resulting from the continued Discharge of Pollutants in accordance with the terms of a Permit that has been issued pursuant to the Program;

d. Prevent the continued Discharge of Pollutants in accordance with the terms of a Permit that has been issued pursuant to the Program which threatens to damage property or otherwise cause Pass Through or Interference;

e. Reflect a change in the nature, concentration or volume of an Industrial Discharge; or

f. Correct errors in the Permit issued.

E. Permit Not Transferable

SIU Permits are issued to a specific user for a specific operation and are not assignable to another user or transferable to any other location. In the event of sale or transfer of ownership, the Permittee must provide a copy of this Permit to the purchaser and give written notification to the Wastewater Quality Division prior to the effective date of sale or ownership transfer. **THE PURCHASER MUST OBTAIN A NEW PERMIT PRIOR TO THE DISCHARGE OF ANY INDUSTRIAL WASTEWATER TO THE POTW.**

F. Duty to Reapply; Automatic Extension of Existing Permit

1. If a SIU wishes to continue to Discharge after the expiration date of a previously issued Permit, the SIU **must apply for and obtain a new Permit**. The application must be submitted to the Wastewater Quality Division at least sixty (60) calendar days **before** the expiration date of the previously issued Permit unless written permission for an extension of time is timely requested and the Wastewater Quality Division grants the request.

2. Subject to the city's right to modify, revoke or terminate any SIU Permit, a previously issued Permit shall continue to remain in full force and effect after the date of expiration if the SIU has applied for a new SIU Permit in accordance with the timeframe required by this section, and a new Permit is not issued prior to the expiration date of the previously issued Permit.

G. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes but is not limited to: effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the Permit.

H. Duty to Halt or Reduce Activity

1. Each IU shall comply with any demand of the city to halt any actual or threatened Discharge to a POTW when the city has given notice that such actual or threatened Discharge:

    a. Presents or may present an imminent or substantial endangerment to the health or welfare of any Person or to the environment; or

    b. Will cause Interference or Pass Through.

I. Bypass

1. An IU may allow a Bypass to occur which does not cause a violation of any Pretreatment Requirement, but only if such Bypass is for essential maintenance to assure efficient operation. These Bypasses are not subject to the provisions of paragraph (4) of this subsection.

2. If an IU knows in advance of the need for a Bypass, it shall submit prior notice to the city, if possible, at least ten (10) calendar days before the date of the Bypass.

3. An IU shall submit verbal notice of an unanticipated Bypass that causes a violation of any Pretreatment Requirements to the city Immediately upon becoming aware of the Bypass. A written submission shall also be provided within five (5) calendar days of the time the IU becomes aware of the Bypass. The written submission shall contain a description of the Bypass and its cause; the duration of the Bypass, including exact dates and times, and, if the Bypass has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the Bypass. The city may waive the written report on a case-by-case basis if the verbal report has been received as set forth above.

4. Bypass is prohibited, and the city may take enforcement action against an IU for a Bypass unless the IU can clearly establish that:

    a. Bypass was unavoidable to prevent loss of life, personal injury, or substantial physical damage to property, damage to treatment facilities that causes them to become inoperable, or the substantial and permanent loss of natural resources;

    b. There were no feasible alternatives to the Bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a Bypass which occurred during normal periods of equipment downtime or preventative maintenance; and

c. The IU submitted notices as required under this subsection.

5. The city may approve an anticipated Bypass, after considering its adverse effects, if the City determines that it will meet the three conditions listed above.

J. Upset

1. An Upset shall constitute an affirmative defense to an action brought for a violation of a Pretreatment Requirement if the IU demonstrates, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a. An Upset occurred and that the IU can identify the cause(s) of the Upset;

   b. The facility was being operated in a prudent and workman-like manner and in compliance with applicable operation and maintenance procedures at the time of the Upset;

   c. The IU has submitted the following information to the city Immediately of becoming aware of the Upset (if this information is provided verbally, a written submission must be provided within five (5) calendar days):

      (i) A description of the Upset and the cause and nature of the violation resulting from the Upset;

      (ii) The duration of the violation, including exact dates and times or, if not corrected, the anticipated time the violation is expected to continue; and

      (iii) The steps being taken and/or planned to reduce, eliminate, and prevent recurrence of the Upset or any resulting violation of Pretreatment Requirements.

2. An IU shall have the burden of proof of establishing that any violation that is the subject of any enforcement proceeding was the result of an Upset.

K. Compliance Schedules

Any Compliance Schedule included in this Permit shall contain increments of progress in the form of dates for the commencement and completion of major events leading to the construction and operation of additional Pretreatment required for the IU to meet the applicable Pretreatment Requirements (e.g., hiring an engineer, completing preliminary plans, completing final plans, executing contracts for major components, commencing construction, completing construction, etc.). Compliance Schedules shall reflect the shortest time period practicable to achieve full compliance and no increment referred to in the Compliance Schedule shall exceed nine (9) months. Not later than fourteen (14) calendar days following each date in the schedule and the final date for compliance, the IU shall submit a progress report to the city including, at a minimum, whether or not it complied with the increment of progress to be met on such date and, if not, the date on which it expects to comply with this increment of progress, the reason for delay, and the steps being taken by the IU to return to the schedule established. In no event shall more than nine (9) months elapse between such progress reports to the city.

L. Planned Changes

1. No SIU shall make a substantial change to its Pretreatment methodology, or make any facility expansion, production increase or process modification which results, or may result, in new or increased Discharges, or a change in the nature of the Discharge, without providing written notice to the city at least ninety (90) calendar days prior to implementing that change. Additionally, no SIU shall make any change to a BMP set forth in a SIU Permit without first obtaining a modified Permit reflecting that change.

2. SIUs are required to notify the city immediately of any change at its facility affecting the potential for a Slug Discharge.

M. Signatory Requirements

Permit applications, baseline monitoring reports, 90-day compliance reports, self-monitoring reports and any other reports or notices addressing Permit non-compliance, or that are required pursuant to any enforcement action taken by the city must be signed by the appropriate signatory or duly authorized representative of the SIU, as follows:

1. By a responsible corporate officer if the SIU is a corporation. For the purposes of this subparagraph, a responsible corporate officer means:

   a. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

   b. The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiate and direct other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; can ensure that the necessary systems are established or actions taken to gather complete and accurate information for control mechanism requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

   c. By a general partner or proprietor if the SIU is a partnership or sole proprietorship respectively;

   d. By a duly authorized representative of the individual designated above if:

      (i) The authorization is made in writing by the individual described in subparagraph a, b, or c above;

      (ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the facility from which the Industrial Discharge originates, such as the position of plant manager, or a position of equivalent responsibility, or having overall responsibility for environmental matters for the SIU; and

      (iii) The written authorization is submitted to the city.

e. Any change in signatures or positions shall be submitted to the city in writing prior to or together with any reports to be signed by an authorized representative, but in no case more than thirty (30) calendar days after the change; and

f. Any Person signing a document under this paragraph shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

N. Annual Publication

The city shall annually publish, in the largest daily newspaper published in the city, public notice of all IU's who, during the preceding twelve (12) month period, were found to be in SNC. This same notice shall also summarize all enforcement actions taken by the city against those IU's during the same twelve (12) month period.

O. Seek Penalties

The city has, without limitation, authority to seek civil or criminal penalties for non-compliance. The City may enforce the Program by imposing and recovering a civil penalty of one thousand dollars ($1,000) for each violation of any applicable Pretreatment Requirement. For continuing violations, each day may constitute a separate violation.

P. Recovery of Costs Incurred

The city may seek recovery of the civil penalties provided above either by an action in superior court or by a negotiated settlement agreement.

Q. Dilution

Discharges that have in any way been diluted as a substitute for Pretreatment for the purpose of obtaining compliance with any Pretreatment Requirement imposed by the Program are prohibited. However, Dilution is allowed to the extent that it is expressly authorized by any applicable Categorical Standard.

R. Hazardous Waste Notification

1. An IU shall notify the city, the EPA Regional Waste Management Division Director, and ADEQ in writing of any Discharge into a POTW of a substance, which, if otherwise disposed of, would be a hazardous waste under 40 CFR Part 261. Such notification must include the name of the hazardous waste as set forth in 40 CFR Part 261, the EPA hazardous waste number, and the type of Discharge (continuous, batch, or other). If the IU Discharges more than 100 kilograms of such waste per calendar month to a POTW, the notification shall also contain the following information to the extent, such information is known and readily available to the IU:

a. An identification of the hazardous constituents contained in the wastes;

b. An estimation of the mass and concentration of such constituents in the wastestream Discharged during that calendar month; and

c. An estimation of the mass of constituents in the wastestream expected to be Discharged during the following twelve months.

All notifications must take place within one hundred eighty (180) calendar days after the Discharge of the listed or characteristic hazardous waste. Any notification under this paragraph need be submitted only once for each hazardous waste Discharged. However, notifications of changed Discharges must be submitted under 40 CFR Part 403.12 (j). The notification requirement in this section does not apply to Pollutants already reported under the self-monitoring requirements of Part III.A. of this Permit.

2. An IU is exempt from the requirements of paragraph 1 of this subsection during calendar months in which they Discharge no more than fifteen kilograms of hazardous wastes, unless the wastes are acute hazardous wastes as specified in 40 CFR Part 261.30 (d) and 261.33 (e). Discharge of more than fifteen kilograms of non-acute hazardous wastes in a calendar month, or of any quantity of acute hazardous wastes as specified in 40 CFR Part 261.30 (d) and 261.33 (e), requires a one-time notification. Subsequent months during which the IU Discharges more than such quantities of any hazardous waste do not require additional notification.

3. In the case of any new EPA regulations identifying additional characteristics of hazardous waste or listing any additional substance as a hazardous waste, the IU must notify the city, the EPA Regional Waste Management Waste Division Director, and ADEQ of the Discharge of such substance within ninety (90) calendar days of the effective date of such regulations.

4. In the case of any notification made under paragraph 1 of this subsection, the IU shall certify that it has a program in place to reduce the volume and toxicity of hazardous wastes generated to the degree it has determined to be economically practical.

PART V - SPECIAL CONDITIONS

A. Combined (Dilute & Process) Wastestreams Discharge Limits

The Permittee has a number dilute wastestreams that combine with their regulated semiconductor process wastestreams at the IWD-1, IWD-2, IWD-6, IWD-8, IWD-11, and IWD-12 compliance points. Under 40 CFR Part 403.6(e), an alternative Discharge standard for TTO must be calculated using the Combined Wastestream Formula to account for all the dilute wastestreams when combined with the regulated semiconductor process wastestreams at these compliance points. Since the dilute wastestreams that combine with the semiconductor process wastestreams are sporadic, the Permittee has chosen not to track the Discharge of these wastestreams and has agreed to abide by the most stringent TTO Discharge standards that include their worst-case dilute wastestreams. The steps used to calculate the adjusted Federal TTO Discharge Standards at these compliance points can be found in **Attachment C** of this Permit.

B. Fluoride Best Management Practices (BMP's)

The City of Chandler has approved the Permitter's Best Management Practices (BMP's) for the control of fluoride in their industrial Wastewater effluent from their Chandler-Ocotillo Campus facility. The purpose of implementing the BMP's is to reduce fluoride in the Wastewater before it is Discharged from their facility. The BMP's for controlling fluoride Discharge levels include segregation and in-plant treatment of concentrated fluoride wastestreams using calcium precipitation. **The Permittee's fluoride BMP's are attached and are an enforceable part of this IU Permit.**

Under Section II.E.1 of the Program, the Permittee will be allowed to exceed the city fluoride Discharge limit of 10 mg/L and it will not be considered a violation. The 10 mg/L fluoride Discharge limit will not be enforced as long as enforceable fluoride BMP's are included in the Permittee's Permit and the procedures outlined in their fluoride BMP are followed.

C. Combined Outfall Discharge Limits

All process and non-process related wastestreams from the Permittee's facilities are Discharged into the POTW through the IWD-3, IWD-4, and IWD-9 compliance points and city Discharge standards apply. The Permittee does not have a common compliance point that allows for the combination of all wastestreams from the IWD-3, IWD-4, and IWD-9 Discharge points. Therefore, a combined outfall calculation is used to determine the combined outfall concentrations for compliance with city Discharge standards. The combined outfall calculations are used to determine compliance with city Discharge standards instead of individual compliance at each of the IWD-3, IWD-4, and IWD-9 compliance points. The calculations to determine the Permittee's combined outfall concentrations are included in **Attachment D**.

The Permittee shall record flow information for the 24-hour period during the collection of samples at the IWD-3, IWD-4, and IWD-9 compliance sampling locations. This flow information will be used by the city to determine the combined outfall concentrations for compliance with city Discharge standards as mentioned in the previous paragraph. This flow information is vital to determine compliance with city Discharge standards and the Permittee must ensure that the flow measurement devices at the IWD-3, IWD-4, and IWD-9 compliance points are maintained and calibrated in accordance with the manufacturer's recommendation, but such calibration shall occur no less than annually in accordance with Section II.L.10. of the Program.

The Permittee shall include in all self-monitoring reports submitted to the city the calculated combined outfall concentration for each regulated parameter sampled at the IWD-3, IWD-4, and IWD-9 compliance points. In addition, the flow and analytical data used to obtain the combined outfall concentrations shall be provided.

The city has elected to include a Chemical Oxygen Demand (COD) Discharge limit in this Permit instead of a Biochemical Oxygen Demand (BOD) Discharge limit (as required under Section II B.2. of this Permit) because COD is more representative of the Permittee's Discharge.

The city's Wastewater Treatment Plants have limited treatment capacity, and the city is in the process of expanding their Ocotillo Water Reclamation Facility (OWRF) to accommodate future growth. The Permittee and the city have agreed to perform Wastewater testing of the Permittee's effluent and the city's Wastewater influent at the OWRF and the Airport Water Reclamation Facility (AWRF) to better understand the Permittee's Discharges and the city's treatment plant capabilities. The Permittee and the city will share data and review the results of this Wastewater sampling.

Under Section III.A.11.(k) of the Program, it is the responsibility of the Director to issue Permits with conditions and requirements as deemed reasonably necessary to prevent Pass Through or Interference. Therefore, in addition to the Discharge Limitations and Sampling Requirements listed on pages 4 - 12 of this Permit, the Permittee shall also sample and analyze for the parameters listed in the following table. Wastewater Discharges shall not exceed the Discharge limitations set forth below that are derived by the city to protect the city's Wastewater Treatment Facilities.

The monthly self-monitoring reports required by this section shall be submitted by the 20th of the following month and contain the applicable compliance point(s), Discharge flow information, analytical results, and the combined outfalls calculations.

Additional Discharge Limitations[2] and Sampling Requirements[3] at the IWD-3, IWD-4, & IWD-9 Compliance Points

Parameter	Daily Maximum	Monthly Average	Minimum Sampling Frequency	Sampling Method[4]
Total Nitrogen	46.2[5]	40.3[5]	1 / month	Time Composite
COD	443[5]	388[5]	1 / month	Time Composite

[2] Unless otherwise noted, all limitations are in units of mg/L.

[3] All sampling of the Discharge to evaluate compliance must be conducted at the compliance sampling points IWD-3, IWD-4, and IWD-9 as described in Part I.B. and depicted in **Attachment A**.

[4] Shall be analyzed by an EPA approved method pursuant to 40 CFR Part 136.

[5] The combined outfall calculations used to determine compliance with these city Discharge concentration standards at the IWD-3, IWD-4, and IWD-9 compliance points are included in **Attachment D**.

D. Slug Discharge Control Plan

In **December 2019**, the Permittee submitted an updated Slug Discharge Control Plan to the city. This Slug Discharge Control Plan contains specific requirements and procedures to prevent Slug Discharges into the POTW. This Slug Discharge Control Plan shall be followed and is an enforceable requirement of this Permit.

E. Daily Maximum Total Dissolved Solids

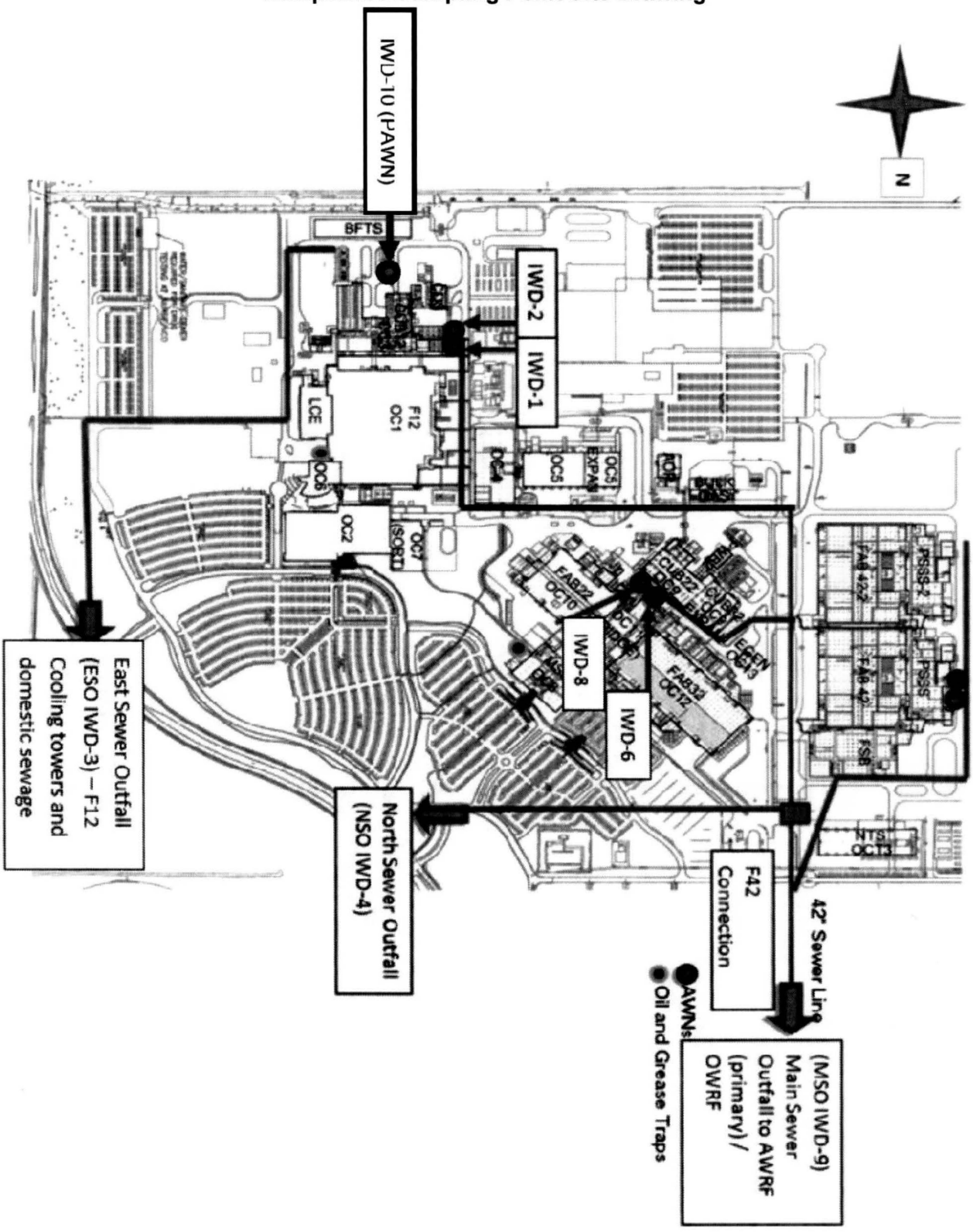
In a forthcoming Permit revision, a Daily Maximum Total Dissolved Solids (TDS) Discharge limit that is consistent with water re-use may be included.

F. Hydrogen Peroxide Discharges

The Permittee shall continue to cooperate with the city to maintain hydrogen peroxide Discharges at mutually agreeable levels.

ATTACHMENT A

Compliance Sampling Point Site Drawing



ATTACHMENT B

Total Toxic Organics (TTO) List for Semiconductor Manufacturing

The term Total Toxic Organics (TTO) shall mean the sum of all the quantifiable values apply to the masses or concentrations of each of the following toxic organic compounds, which is found in the discharge at a concentration greater than 0.010 milligrams per liter (mg/L):

1	Carbon Tetrachloride	16	Methylene Chloride (Dichloromethane)
2	1, 2, 4 - Trichlorobenzene	17	Dichlorobromomethane
3	1, 2 - Dichloroethane	18	Isophorone
4	1, 1, 1 - Trichloroethane	19	Naphthalene
5	1, 1, 2 - Trichloroethane	20	2 - Nitrophenol
6	2, 4, 6 - Trichlorophenol	21	4 - Nitrophenol
7	Chloroform (Trichloromethane)	22	Pentachlorophenol
8	2 - Chlorophenol	23	Phenol
9	1, 2 - Dichlorobenzene	24	Bis(2-ethylhexyl)phthalate
10	1, 3 - Dichlorobenzene	25	Butyl benzyl phthalate
11	1, 4 - Dichlorobenzene	26	Di-n-butyl phthalate
12	1, 1 - Dichloroethylene	27	Anthracene
13	2, 4 - Dichlorophenol	28	Tetrachloroethylene
14	1, 2 - Diphenylhydrazine	29	Toluene
15	Ethylbenzene	30	Trichloroethylene

Source – 40 CFR Part 469.12(a)

ATTACHMENT C

TTO Discharge Limit Combined Wastestream Calculations
IWD-1, IWD-2, IWD-6, & IWD-8

TTO Discharge Calculations for IWD-1

Wastestreams	GPD	=	MGD
Average Daily Semiconductor (40 CFR Part 469)	79,656	=	0.079656
Subtotal:	79,656	=	0.079656
Worst-Case Daily Dilute			
UPW UltraFilter Reject	17,280	=	0.017280
IX Anion Regeneration Preheat	7,200	=	0.007200
IX Anion Regeneration Chemical Injection	5,400	=	0.005400
IX Anion Regeneration Chemical Injection double)	0	=	0.000000
IX Anion Regeneration Caustic Displacement	5,400	=	0.005400
1st Pass RO Start-Up Service Rinse	32,000	=	0.032000
1st Pass RO Shutdown Service Rinse	12,800	=	0.012800
Anion Regeneration Backwash	4,500	=	0.004500
Anion Regeneration Rinse	48,000	=	0.048000
IXM NaOH Rinse	640	=	0.000640
IXM NaOH Displacement	1,280	=	0.001280
IXM Regeneration Backwash	4,050	=	0.004050
IXM Preheat	7,020	=	0.007020
IXM Chemical Injection	4,050	=	0.004050
IXM Chemical Displacement/Injection	1,260	=	0.001260
IXM Chemical Displacement	6,240	=	0.006240
IXM Chemical Rinse	10,560	=	0.010560
IXM Full Bed Rinse	18,000	=	0.018000
IXM Fast Rinse	14,000	=	0.014000
1st Pass RO Clean Permeate Rinse-Up	24,000	=	0.024000
2nd Pass RO Clean Rinse-Up	27,000	=	0.027000
PolMB Chemical Injection and Rinse for Resin Re-use	9,000	=	0.009000
1st Pass RO Cleaning Solution	4,800	=	0.004800
2nd Pass RO Cleaning Solution	4,800	=	0.004800
LUPW MB Rinse	36,000	=	0.036000
AOP UVR	1,500	=	0.001500
AOP185UV	1,500	=	0.001500
Primary CF Replacement	12,000	=	0.012000
Polish UV	2,100	=	0.002100
LUPW UV Replacement	600	=	0.000600
HUPW UltraFilter[1]	43,200	=	0.043200
Polish CF[1]	360,000	=	0.360000
Polish UF Rinse Skid[1]	115,200	=	0.115200
1st Pass RO Membrane Replacement[1]	210,000	=	0.210000
2nd Pass RO Membrane Replacement[1]	189,000	=	0.189000
LUPW UF Replacement[1]	14,400	=	0.014400
PolMB New Resin Quality Rinse in the Conesep[1]	230,400	=	0.230400
1st Pass RO Clean Rinse-Up[1]	45,000	=	0.045000
Subtotal:	322,980	=	0.322980
Total:	402,545	=	0.402545

Combined Wastestream Formula from 40 CFR Part 403.6(e)

$$\text{TTO Limit} = 1.37\ \text{mg/L} \times \frac{0.402545 - 0.323}{0.402545} = \mathbf{0.27\ mg/L}$$

[1] Permittee agrees not to include the PolMB New Resin Quality Rinse in the Conesep,1st Pass RO Clean Rinse-Up, HUPW UltraFilter, Polish CF, Polish UF Rinse Skid, Polish UF Qual 1st Pass RO Membrane Replacement, 2nd Pass RO Membrane Replacement, and LUPW UF Replacement during any compliance sampling at the IWD-1 compliance point. Therefore, the TTO discharge limit at the IWD-1 compliance point was calculated excluding these dilution wastestreams.

ATTACHMENT C – Continued

TTO Discharge Calculations for IWD-2

Wastestreams	GPD	=	MGD
Average Daily Semiconductor (40 CFR Part 469)	408,322	=	0. 408322
Subtotal:	408,322	=	0. 408322
Worst-Case Daily Dilute			
F12 RO Prefilters Replacement Rinse-Up	1,500	=	0.001500
Equipment & Floor Rinses	600	=	0.000600
F12 SCW Carbon Bed Backwash	500	=	0.000500
Subtotal:	2,600	=	0.002600
Total:	410,922	=	0.410922

Combined Wastestream Formula from 40 CFR Part 403.6(e)

$$\text{TTO Limit} = 1.37 \text{ mg/L} \times \frac{0.410922 - 0.0026}{0.410922} = \textbf{1.36 mg/L}$$

TTO Discharge Calculations for IWD-6

Wastestreams	GPD	=	MGD
Average Daily Semiconductor (40 CFR Part 469)	1,045,723	=	1.045723
Subtotal:	1,045,723	=	1.045723
Worst-Case Daily Dilute			
F22 Multimedia Backwash Rinse-Up	5,000	=	0.005000
F32 LUPW MB Rinse	36,000	=	0.036000
F32 LUPW UV Replacement	600	=	0.000600
F32 LUPW Bed Rinses	36,000	=	0.036000
1st Pass RO Start-Up Service Rinse – Permeate	25,000	=	0.025000
1st Pass RO Clean Rinse-Up	45,000	=	0.045000
2nd Pass RO Start-up	1,580	=	0.001580
Boron Resin Bottle Rinse	7,200	=	0.007200
F32 UPW Return Cabinet	2,880	=	0.002880
F32 LUPW UF Replacement[2]	14,400	=	0.014400
F32 Polish CF[2]	24,000	=	0.024000
F22 Multimedia Backwash[2]	30,000	=	0.030000
HUPW UltraFilter[2]	43,200	=	0.043200
Subtotal:	159,260	=	0.159260
Total:	1,204,983	=	1.204983

Combined Wastestream Formula from 40 CFR Part 403.6(e)

$$\text{TTO Limit} = 1.37 \text{ mg/L} \times \frac{1.204983 - 0.15926}{1.204983} = \textbf{1.19 mg/L}$$

[2] Permittee agrees not to include the F22 Multimedia Backwash, HUPW UltraFilter, F32 LUPW UF Replacement, and F32 Polish CF during any compliance sampling at the IWD-6 compliance point.Therefore, the TTO discharge limit at this compliance point was calculated excluding these dilution wastestreams.

ATTACHMENT C – Continued

TTO Discharge Calculations for IWD-8

Wastestreams	GPD	=	MGD
Average Daily Semiconductor (40 CFR Part 469)	456,431	=	0.456431
Subtotal:	456,431	=	0.456431
Worst-Case Daily Dilute			
UPW UltraFilter Reject	28,800	=	0.028800
1st Pass RO Start-Up Service Rinse	8,300	=	0.008300
1st Pass RO Shutdown Service Rinse	15,000	=	0.015000
IX Anion Preheat	5,400	=	0.005400
IX Anion Regen Chemical Injection	3,600	=	0.003600
IX Anion Regen Backwash	600	=	0.000600
IX Anion Regen Chemical Injection double)	3,600	=	0.003600
IX Anion Regeneration Caustic Displacement	3,600	=	0.003600
IX Anion Regeneration Final Rinse	18,000	=	0.018000
F22 SCW Carbon Bed Backwash	500	=	0.000500
F22 RO Prefilters Replacement Rinse-Up	3,500	=	0.003500
1st Pass RO Cleaning Solution	5,600	=	0.005600
1st Pass RO Cleaning Rinse	74,880	=	0.074880
IXM Caustic Rinse	480	=	0.000480
IXM Caustic Displacement	1,280	=	0.001280
IXM Backwash	2,800	=	0.002800
IXM Preheat	2,790	=	0.002790
IXM Chemical Injection	4,320	=	0.004320
IXM Acid Displacement/Caustic Injection	1,005	=	0.001005
IXM Regeneration Displacement	3,720	=	0.003720
IXM Acid Displacement/Caustic Rinse	4,950	=	0.004950
IXM Regen Rinse	8,400	=	0.008400
IXM Regen Final Rinse	18,000	=	0.018000
AOP UVR	1,500	=	0.001500
APO 185UV	1,500	=	0.001500
Polish UF Rinse Skid	4,800	=	0.004800
Equipment & Floor Rinses	150	=	0.000150
IW/SWS end of line flow meters	86,400	=	0.086400
Final Quality Analytical Cabinets	8,640	=	0.008640
F22 LUPW Bed Rinses	36,000	=	0.036000
1st Pass RO Membrane Replacement[3]	27,000	=	0.027000
2nd Pass RO Membrane Replacement[3]	18,000	=	0.018000
HUPW UF PreRinse in CUB[3]	43,200	=	0.043200
Primary CF Replacement[3]	15,000	=	0.015000
Polish UV[3]	2,100	=	0.002100
F22 Polish CF[3]	24,000	=	0.024000
F22 HUPW UltraFilter[3]	43,000	=	0.043000
Subtotal:	358,115	=	0.358115
Total:	814,546	=	0.814546

Combined Wastestream Formula from 40 CFR Part 403.6(e)

$$\text{TTO Limit} = 1.37\ \text{mg/L} \times \frac{0.814546 - 0.358115}{0.814546} = \textbf{0.77 mg/L}$$

[3] Permittee agrees not to include the 1st Pass RO Membrane Replacement, 2nd Pass RO Membrane Replacement, HUPW UF PreRinse in CUB, Primary CF Replacement, Polish UV, F22 Polish CF, and F22 HUPW UltraFilter during any compliance sampling at the IWD-8 compliance point. Therefore, the TTO discharge limit for this compliance point was calculated excluding these dilution wastestreams.

ATTACHMENT C – Continued

TTO Discharge Calculations for IWD-11

Wastestreams	GPD	Reduced By	GPD	=	MGD
Average Daily Semiconductor (40 CFR Part 469)	887,079	60%	532,248	=	0.532248
		Subtotal:	532,248	=	0.532248
Worst-Case Daily Dilute					
UPW UltraFilter Reject	17,280	60%	10,368	=	0.010368
IX Anion Regen Preheat	7,200	60%	4,320	=	0.004320
IX Anion Regen Chemical Injection (single)	0	60%	0	=	0.000000
IX Anion Regen Chemical Injection (double)	10,800	60%	6,480	=	0.006480
IX Anion Regen Caustic Displacement	5,400	60%	3,240	=	0.003240
IX Anion Regen Backwash	4,500	60%	2,700	=	0.002700
IX Anion Regen Rinse	48,000	60%	28,800	=	0.028800
1st Pass RO Start-Up Service Rinse	29,440	60%	17,664	=	0.017664
1st Pass RO Shutdown Flush	128,000	60%	76,800	=	0.076800
IXM NaOH rinse	640	60%	384	=	0.000384
IXM NaOH displacement	1,280	60%	768	=	0.000768
IXM Regeneration Backwash	4,050	60%	2,430	=	0.002430
IXM preheat	7,020	60%	4,212	=	0.004212
IXM chem injection	4,050	60%	2,430	=	0.002430
IXM chem displace/inject	1,260	60%	756	=	0.000756
IXM chem displacement	6,240	60%	3,744	=	0.003744
IXM chem rinse	10,560	60%	6,336	=	0.006336
IXM full bed rinse	18,000	60%	10,800	=	0.010800
IXM fast rinse	14,000	60%	8,400	=	0.008400
PolMB new resin quality Rinse in the PolMB	288,000	60%	172,800	=	0.172800
1st Pass RO Clean Rinse-Up	41,400	60%	24,840	=	0.024840
1st Pass RO Cleaning Solution	4,800	60%	2,880	=	0.002880
LUPW MB Rinse	36,000	60%	21,600	=	0.021600
AOP UVR	1,500	60%	900	=	0.000900
Polish UF Rinse skid	57,600	60%	34,560	=	0.034560
Polish UF qual 3 days	0	60%	0	=	0.000000
RO Prefilters Replacement Rinse-Up	7,500	60%	4,500	=	0.004500
Equipment & Floor Rinses (manual)	600	60%	360	=	0.000360
Multimedia Post Backwash Rinse-Up	18,000	60%	10,800	=	0.010800
Multimedia Backwash	78,000		78,000	=	0.078000
HUPW UltraFilter	21,600	60%	12,960	=	0.012960
AOP 185UV	750	60%	450	=	0.000450
Primary CF replacement	6,000	60%	3,600	=	0.003600
Polish UV	1,050	60%	630	=	0.000630
Polish CF	180,000	60%	108,000	=	0.108000
1st Pass RO Membrane Replacement	96,600	60%	57,960	=	0.057960
2nd Pass RO Membrane Replacement	94,500	60%	56,700	=	0.056700
LUPW UF Replacement	14,400	60%	8,640	=	0.008640
LUPW UV Replacement	300	60%	180	=	0.000180
		Subtotal:	541,872	=	541,872
		Total:	1,074,119	=	1.074119

Combined Wastestream Formula from 40 CFR Part 403.6(e)

$$\text{TTO Limit} = 1.37 \text{ mg/L} \times \frac{1.074119 - 0.541872}{1.074119} = \textbf{0.68 mg/L}$$

[1] Permittee agrees not to include the HUPW UltraFilte, AOP 185UV, Primary CF, Polish CF, replacement, 1st Pass RO Clean Rinse-Up,1st Pass RO Membrane Replacement, 2nd Pass RO Membrane Replacement, LUPW UV Replacement and LUPW UF Replacement during any compliance sampling at the IWD-11 compliance point. Therefore, the TTO discharge limit at the IWD-11 compliance point was calculated excluding these dilution wastestreams.

The volumetric flow rate for the IWD-11 compliance sampling point is 60% of the total mixed flow (i.e., semiconductor wastestream plus dilute wastestream prior to the F42 AWN A and F42 AWN B split) plus 100% of the Multimedia Backwash dilute wastestream. Multimedia Backwash is not shown on the 2021 Fab 42 Compliance Drawing, but was relayed verbally by the Permittee on 5/3/2021 that it is added to IWD-11 after the F42 AWN A and F42 AWN B split and is included with the IWD-11 compliance sampling point wastestream.

ATTACHMENT C – Continued

TTO Discharge Calculations for IWD-12

Wastestreams	GPD	=	MGD
Average Daily Semiconductor (40 CFR Part 469)	887,079	=	0.887079
Subtotal:	887,079	=	0.887079
Worst-Case Daily Dilute			
UPW UltraFilter Reject	17,280	=	0.017280
IX Anion Regen Preheat	7,200	=	0.007200
IX Anion Regen Chemical Injection (single)	0	=	0.000000
IX Anion Regen Chemical Injection (double)	10,800	=	0.010800
IX Anion Regen Caustic Displacement	5,400	=	0.005400
IX Anion Regen Backwash	4,500	=	0.004500
IX Anion Regen Rinse	48,000	=	0.048000
1st Pass RO Start-Up Service Rinse	29,440	=	0.029440
1st Pass RO Shutdown Flush	128,000	=	0.128000
IXM NaOH rinse	640	=	0.000640
IXM NaOH displacement	1,280	=	0.001280
IXM Regeneration Backwash	4,050	=	0.004050
IXM preheat	7,020	=	0.007020
IXM chem injection	4,050	=	0.004050
IXM chem displace/inject	1,260	=	0.001260
IXM chem displacement	6,240	=	0.006240
IXM chem rinse	10,560	=	0.010560
IXM full bed rinse	18,000	=	0.018000
IXM fast rinse	14,000	=	0.014000
PolMB new resin quality Rinse in the PolMB	288,000	=	0.288000
1st Pass RO Clean Rinse-Up	41,400	=	0.041400
1st Pass RO Cleaning Solution	4,800	=	0.004800
LUPW MB Rinse	36,000	=	0.036000
AOP UVR	1,500	=	0.001500
Polish UF Rinse skid	57,600	=	0.057600
Polish UF qual 3 days	0	=	0.000000
RO Prefilters Replacement Rinse-Up	7,500	=	0.007500
Equipment & Floor Rinses (manual)	600	=	0.000600
Multimedia Post Backwash Rinse-Up	18,000	=	0.018000
HUPW UltraFilter	21,600	=	0.021600
AOP 185UV	750	=	0.000750
Primary CF replacement	6,000	=	0.006000
Polish UV	1,050	=	0.001050
Polish CF	180,000	=	0.180000
1st Pass RO Membrane Replacement	96,600	=	0.096600
2nd Pass RO Membrane Replacement	94,500	=	0.094500
LUPW UF Replacement	14,400	=	0.014400
LUPW UV Replacement	300	=	0.000300
Subtotal:	773,120	=	0.773120
Total:	1,660,199	=	1.660199

Combined Wastestream Formula from 40 CFR Part 403.6(e)

$$\text{TTO Limit} = 1.37\ \text{mg/L} \times \frac{1.660199 - 0.773120}{1.660199} = \mathbf{0.73\ mg/L}$$

[1] Permittee agrees not to include the HUPW UltraFilte, AOP 185UV, Primary CF, Polish CF, replacement,1st Pass RO Clean Rinse-Up,1st Pass RO Membrane Replacement, 2nd Pass RO Membrane Replacement, LUPW UV Replacement and LUPW UF Replacement during any compliance sampling at the IWD-12 compliance point. Therefore, the TTO discharge limit at the IWD-12 compliance point was calculated excluding these dilution wastestreams.

ATTACHMENT D

Combined Outfall Calculations to Determine city Discharge Concentration & Mass Standards for IWD-3, IWD-4, & IWD-9 Compliance Points

1. Flow Data:

F3 denotes the Total Flow Volume of Wastewater (MGD) discharged in a 24-hour period during sample collection at IWD-3.

F4 denotes the Total Flow Volume of Wastewater (MGD) discharged in a 24-hour period during sample collection at IWD-4

F9 denotes the Total Flow Volume of Wastewater (MGD) discharged in a 24-hour period during sample collection at IWD-9

2. Parameter Concentration Calculations:

All samples shall be collected at the IWD-3, IWD-4, and IWD-9 compliance points for exact parameters in the same day.

A3 denotes the analytical concentration (mg/L) of each parameter at IWD-3.

A4 denotes the analytical concentration (mg/L) of each parameter at IWD-4.

A9 denotes the analytical concentration (mg/L) of each parameter at IWD-9.

$$\left(\frac{(\mathrm{A3} \times \mathrm{F3}) + (\mathrm{A4} \times \mathrm{F4}) + (\mathrm{A9} \times \mathrm{F9})}{\mathrm{F3} + \mathrm{F4} + \mathrm{F9}}\right) = \boldsymbol{Combined\ Concentration}\left(\frac{\boldsymbol{mg}}{\boldsymbol{L}}\right)$$

3. Parameter Mass Calculations:

The TSS Discharge Limits included in this Permit are mass based. To calculate the combined mass Discharged, the following calculation is used:

$$(Combined\ Flow\ MGD) \times \left(Combined\ Concentration\ \frac{mg}{L}\right) \times \left(8.34\ \frac{lbs}{gallon}\right) = \boldsymbol{Discharge}\left(\frac{\boldsymbol{lbs}}{\boldsymbol{day}}\right)$$

Note: The combined outfall concentrations and mass are used to determine compliance with city Discharge Limitations instead of individual compliance at each compliance point.

April 30, 2008

Lou Provencio
City of Chandler Wastewater Quality Division, Mail Stop 396
PO Box 4008
Chandler, AZ 85244-4008

Re: Update to Fluoride Best Management Practice
Intel Corporation Ocotillo Campus (Permit #9)

Dear Mr. Provencio:

Intel Corporation operates its Ocotillo campus at 4500 South Dobson Road in Chandler, Arizona and holds Industrial User Permit #9 issued by the City of Chandler for wastewater discharges. The intention of this letter is to provide written communication to the City as required in the City of Chandler Pretreatment Ordinance 2938 (Section 00-02 (d) and (e)(7)) to update the City on the Best Management Practice (BMP) for treating fluoride-containing waste streams at the Ocotillo campus.

Fluoride BMP Background

City of Chandler wastewater pretreatment ordinance 2938 (Section 00-02 (d)) defines a BMP for waste water containing a high concentration of fluoride to ensure that there will not be additional loading to the POTW to cause pass through of fluoride. The City has done this to regulate those facilities that use chemicals containing fluoride and to ensure that those industries use an applicable treatment process for their waste streams that contain high fluoride concentrations. Under Section 00-02(d)(1) of the Chandler pretreatment ordinance, the 10 mg/l fluoride discharge limit is not applicable as long as an enforceable fluoride BMP is included in the industrial use permit. The BMP is subject to enforcement and a Notice of Violation can be issued if it is not followed.

Intel Fluoride BMP

Intel generates fluoride-containing waste streams from its process and therefore qualifies for the BMP ordinance option. As stated in ordinance 2938 Section 00-02 (d)(3), "BMPs for facilities with any high concentration flows (maximum concentrations exceeding 200 mg/l) generated by a Significant Industrial Use with a maximum daily fluoride load of 3 pounds or more per day, will generally include calcium precipitation or an equivalent treatment." Intel maintains calcium precipitation treatment systems for those waste streams containing fluoride concentrations equal to or greater than 200 mg/l.

Intel Corporation
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Chandler, AZ 85248
1.480.554.8080
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Fabrication Process Description

Manufacturing operations employed at the Ocotillo campus are typical of the semiconductor industry. Processes employed at the campus include wafer etching and cleaning, photolithography, ion implantation, thin film layer growth, metal deposition and polishing, and parts cleaning. Hydrofluoric acid and ammonium fluoride are used in the manufacturing process in concentrations ranging from less than 0.1 to 49 percent, by weight. Typical uses of these chemicals include wafer etching and cleaning and parts cleaning.

Fluoride Containing Wastewater Streams

Concentrated wastewater streams from manufacturing operations are the primary source of fluorides at the Ocotillo Campus. Concentrated fluoride wastewaters generated from process tools used in manufacturing operations contains fluoride at concentrations typically ranging from 0.5 to 2.5 percent fluoride by weight. Dilute fluoride wastewater streams are also generated from manufacturing operations. These dilute streams include scrubber wastewaters and tool rinse waters. These dilute wastewater streams generally contain fluoride concentrations below 200 mg/l. Additional fluoride containing wastewaters associated with manufacturing support operations include de-ionized water production wastewaters, cooling tower make up/blowdown, and domestic sanitary wastewaters. The fluorides present in these wastewaters originate from background fluoride concentrations in the incoming city water feed to the Campus.

Table 1 below summarizes the typical distribution of fluoride wastewaters at the Ocotillo Campus. This information is based on flow monitoring and sampling conducted by Intel at its Ocotillo Campus. The table demonstrates that good wastewater segregation practices at the process tool level result in a much lower volume of wastewater requiring treatment to remove fluorides. As shown, the concentrated fluoride wastewater streams contain approximately 93 percent of the fluoride mass in wastewater generated from manufacturing operations in approximately 8 percent of the overall wastewater flow. This also shows that scrubber and process rinse waters contain only 7 percent of the fluoride mass in wastewater generated from manufacturing operations in approximately 92 percent of the overall wastewater flow.

Table 1 – Ocotillo Campus Fluoride Data

Wastewater Stream	Average Fluoride Concentration (mg/l)	Average Flow Rate (gpm)	Fluoride Mass (lbs/day)
Concentrated fluoride wastewater Fab 12	900	24	259
Concentrated fluoride wastewater Fab 22/32	1,526	51	933
Scrubber Wastewater Fab 12	3	80	2.9
Scrubber Wastewater Fab 22	3	50	1.8
Scrubber Wastewater Fab 32	400	5	24.0
Process Rinse Waters Fab 12	8	300	28.8
Process Rinse Waters Fab 22/32	7	400	33.6
Fluoride Treatibility Range	10 - 30		

Intel's Segregation and Treatment of Fluoride Containing Wastewaters

As described above, Intel has determined that segregation of concentrated fluoride wastewaters and treatment of these wastewater streams using calcium precipitation is the most effective methodology for treatment of fluorides. In-plant segregation and treatment of concentrated fluoride wastewater streams (defined as those containing greater than 200 mg/l of fluoride) is consistent with the City of Chandler Pretreatment Ordinance 2938, Section 00-02 (d)(3). In addition, this strategy is also consistent with US EPA's semiconductor guidance document, "Development Document for Effluent Limitation Guidelines and Standards for the Electrical and Electronic Components Point Source Category."

Cost-Benefit Analysis

Per ordinance 2938 Section 00-02 (d)(3), "Any BMPs developed in conjunction with the issuance of an Industrial Use Permit may include an evaluation of cost benefit considerations and the total mass loadings contributed by the Significant Industrial User for whom the permit will be issued." Per this requirement, Intel conducted a cost benefit analysis in the original BMP developed with the City. Per your request, we have included an updated cost benefit analysis for the fluoride treatment BMP in this letter.

Using the median values listed in Table 1, the cost efficiency of segregating concentrated fluoride wastewaters from dilute fluoride wastewaters can be demonstrated. Intel compiled capital and

operation and maintenance costs for the treatment systems used at the Ocotillo Campus for treating concentrated fluoride containing wastewaters. Intel then calculated the capital and operation and maintenance costs that would be needed to treat the dilute fluoride containing wastewaters at the Ocotillo Campus.

Three treatment options were evaluated. Option 1 was to treat only concentrated fluoride containing wastewaters (those with fluoride concentrations greater than 200 mg/l). Option 2 was to treat concentrated fluoride containing wastewaters and dilute fluoride scrubber wastewaters. Option 3 was to treat all concentrated and dilute fluoride wastewaters (scrubber and rinse waters).

Table 2 - Fluoride Segregation Options Analysis

Item	Option 1	Option 2	Option 3
Flow (gpm)	80	210	910
Combined Fluoride Concentration (mg/l)	1,267	485	118
Fluoride Removal (lbs/day)[1]	1,196	1,170	1,064
Capital Cost	$5,500,000	$9,500,000	$30,000,000
Annualized Capital Cost (n=15, I = 8%)	$643,000	$1,110,000	$3,505,000
Annual O&M Cost	$975,000	$2,003,000	$8,519,000
Total Annual Cost	$1,618,000	$3,113,000	$12,024,000
Cost per lb Fluoride Removed	$1,352	$2,775	$11,423

[1]Assumes removal to 20 mg/l, which is the median of the fluoride treatability range for chemical precipitation.

As shown, Option 3 is the most expensive option and results in the least fluoride removed from the wastewaters. This is because of the large volume of wastewater requiring treatment (highest cost) and the limits to the efficiency of chemical precipitation (cannot remove as much fluoride since overall stream is more diluted and treatment can only effectively remove fluoride down to 10 to 30 mg/l). For those reasons, Option 3 is not considered the best option.

In comparing Option 2 versus Option 1, Option 2 is significantly more expensive than Option 1 (almost double the cost). Option 2 also removes slightly less fluoride than Option 1. Therefore, Option 1 is the most efficient option for treating fluorides. This supports the current strategy at the Ocotillo campus of segregating only concentrated wastewater streams (those containing fluoride concentrations exceeding 200 mg/l) for fluoride treatment.

Please call or email me at (480) 715-4211 or matthew.brandy@intel.com if you have any questions. Please include my mail stop, OC4-005, on any postal correspondence.

Sincerely,

INTEL CORPORATION

Matthew Brandy
Ocotillo Site Environmental Engineer