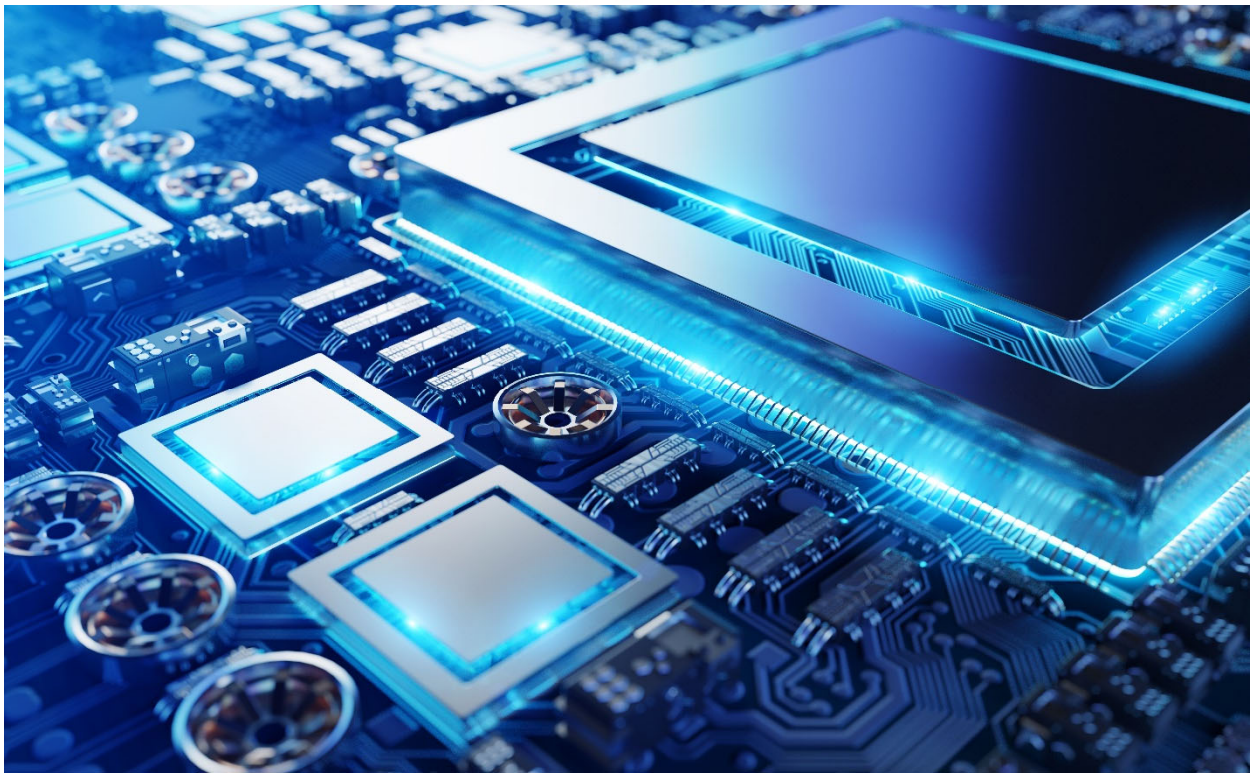

2022 H2 Semi-Annual Monitoring Report

MCAQD Title V Permit Number: P0009315
Facility ID: F000701
Date Submitted: January 26, 2023

Submitted To:
Maricopa County Air Quality Department
301 W. Jefferson St., Suite 410
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2022 H2 Semi-Annual Monitoring Report
Intel Ocotillo Facility
Chandler, Arizona

1. Introduction

Intel Corporation's (Intel) Ocotillo Facility (Facility ID F000701), located at 4500 South Dobson Road in Chandler, Arizona, operates under Title V Permit Number P0009315 (Permit) issued by Maricopa County Air Quality Department (MCAQD). Per Permit Conditions 3.h and 40.b., Semi-Annual Monitoring Reports are required to be submitted to within 30 days of the end of each reporting period. This Semi-Annual Monitoring Report is for the reporting period from July 1st, 2022 to December 31st, 2022 (H2 2022).

2. Rolling 12-Month Emissions

Intel calculates and maintains a record of the Ocotillo Facility's rolling 12-month emissions as required by the Permit. The rolling 12-month emissions totals for each month in this reporting period are provided below.

INTEL OCOTILLO EMISSION SUMMARY

12-Month Rolling Totals		Table 1: 12 Month Rolling Totals for PAL Pollutants						PAL Limit
Pollutant	**Units**	**Jul-2022**	**Aug-2022**	**Sep-2022**	**Oct-2022**	**Nov-2022**	**Dec-2022**	
VOCs	Tons	93.45	93.87	89.13	83.51	79.84	76.54	175
NOx	Tons	133.63	132.34	128.66	124.38	120.31	116.45	198
CO	Tons	156.86	156.93	153.35	148.42	144.24	140.36	388
PM10	Tons	44.69	44.11	42.89	41.37	39.94	38.55	125
PM2.5	Tons	38.29	37.63	36.34	34.75	33.27	31.82	119
PM TOT	Tons	65.36	65.19	64.36	63.22	62.06	60.93	159
SO2	Tons	3.79	3.64	3.61	3.38	3.25	3.02	61
Fluorides	Tons	5.78	5.89	6.04	5.93	6.02	5.89	24

		Table 2: 12 Month Rolling Totals for HAPs						Limit
HF	Tons	3.64	3.56	3.40	3.22	3.04	2.87	9
HAPs	Tons	7.53	7.34	7.07	6.74	6.73	6.44	22

Notes:
HF is the single largest HAP.

3. Data Relied Upon for PAL Pollutant Emissions Calculations

The data relied upon to calculate the monthly and 12-month rolling PAL pollutant emissions during the reporting period are provided in Attachment A.

4. Modifications or Additions to Emissions Units, Monitoring Systems, and Calculation Procedures

4.1. Emission Unit Modifications or Additions

The following equipment modifications were made during this reporting period:

- The two Fab 42 FSB RCTOs (S. Nos. 53 and 54) were permanently shut down on July 12,2022 and subsequently removed from the facility on September 16, 2022. Emissions were re-routed to the remaining Fab 42 RCTOs (S. Nos. 47-52).

The following equipment were in the process of being commissioned and generated start-up emissions during this reporting period, but did not become fully operational:

- F32 OC30 emergency generator 1 (S. No. 129)
- F32 OC30 packaged cooling towers (S. No. 177)

In accordance with Permit Condition 2.i, start-up emissions from the equipment above generated during the commissioning process were included in the Ocotillo Facility's monthly and 12 month rolling PAL pollutant emissions.

4.2. Monitoring System Updates

During this monitoring period, Intel installed flow meters on the Fab 12, Fab 32S, and Fab 42 FSB lines that supply natural gas to fab tools which exhaust to permitted equipment that is performance tested in accordance with Permit requirements. The Fab 12, Fab 32S, and Fab 42 FSB natural gas flow meters were installed and became operational in July, December, and October, respectively. With these new flow meters, the volume of natural gas from which combustion products are routed through performance tested stacks, and which are therefore accounted for in the site's tested emission factors, can be quantified. Previously, these natural gas volumes were unknown and the associated emissions were accounted for as general fab natural gas combustion emissions, while also being captured in the site's tested emission factors.

Following the installation of each flow meter and submittal of a minor permit revision application on July 28, 2022, Intel began accounting for the Fab 12, Fab 32S, and Fab 42 FSB natural gas combustion emissions through the site's tested emission factors only, thereby eliminating the double counting of natural gas combustion emissions.

4.3. Calculation Procedure Updates

Intel submitted a minor modification application to MCAQD on July 28, 2022 to update some of the emission calculation methodologies in Appendix B of the permit. Intel adopted the proposed calculation methodologies during this monitoring period. The revisions to the Appendix B calculation methodologies:

- Allowed for elimination of double counting of natural gas combustion emissions by specifying that general fab natural gas combustion emissions are calculated based on natural gas usage, which is not otherwise accounted for in emission factors developed from performance testing (Section D);
- Eliminated redundant and/or conflicting instances where emissions of a pollutant from a specific source were addressed in more than one section; and
- Added a section (Section O) to specify the method for calculation of VOC emissions from Chemical Delivery Modules (CDMs) once routed to VOC abatement units, but prior to performance testing of the associated VOC abatement systems.

Additionally, Intel began including NOx emissions from the ammonia scrubber (EXAM) systems in July 2022. During a phone conversation with MCAQD on August 11, 2022 and the letter sent to MCAQD on August 17, 2022, Intel notified MCAQD that the Ocotillo Facility's EXAM systems were found to be emitting enough NOx to be above detection levels for some of the scrubbers at the facility based on performance testing data. NOx emissions from the EXAM systems have been calculated using the same methodology described in Section J of Appendix B to the permit, which pertains to CO, NOx, PM, PM_{10}, and $PM_{2.5}$ emissions from wet acid scrubbers and VOC abatement units. As stated in the August 17, 2022 letter, Intel will submit a permit revision application to add NOx to the annual performance testing requirements of the ammonia scrubbers and add the calculation methodology to Appenidix B of the Permit.

5. Deviation Reporting

Two deviations from the Permit requirements occurred during the reporting period and are described below.

Table 5-1: Deviation Log

Log Entry Date	Identification Date	Permit & Condition	Description	Cause	Corrective Actions	Preventative Measures
8/2/2022	8/2/2022	P0008911 Permit Condition 30.a, MCAQD Rule 310 §302.1	On 8/2/2022, Intel became aware that a contractor performed dust generating operations which disturbed more than 0.1 acres without expanding coverage of their exisitng Dust Control Permit prior to beginning work. The dust generating operations consisted of grading and application of millings to construct a parking area near the New Contractor Orientation parking area between 7/29/22 and 7/30/2022 and management of an open storage pile on the southwest corner of the site from 8/1/2022 to 8/2/2022.	Contractor did not have a formal process in place to review environmental requirements prior to beginning project work.	Dust generating operations in the unpermitted areas were stopped once Intel became aware of the deviation. The areas were then added to contractor's dust control permit before dust generating operations resumed.	1. A formal process was put into place by the contractor to assess environmental requirements prior to project start. 2. A process has been implemented where contractors must notify Intel EHS prior to making any changes to their dust control permits so that Intel EHS can verify proper coverage. 3. Intel has implemented a site-wide dust control map to better track the areas that are covered by contractors' permits, as well as Intel's dust control plan. 4.Intel EHS has been invited to additional logistical meetings to increase oversight of projects which may be subject to dust control rules. 5. All contractor's employees involved in field projects were provided Title V training and provided documented proof of the completed training to Intel EHS.

Log Entry Date	Identification Date	Permit & Condition	Description	Cause	Corrective Actions	Preventative Measures
1/13/2023	1/12/2023	Permit P0009315 Condition 19.a.i	While performing 5-year performance testing on F42 Boiler #1 on 1/12/2023, the unit did not meet its BACT compliance limit for NOx. Preliminary test data showed a 3-run average of 23.9 ppm versus a BACT limit of 12 ppm.	On 12/20/22, Intel replaced the boiler's fuel/gas ratio regulator in response to the unit's failure. Following the replacement, Intel's third-party vendor performed an informal tuning of the boiler, where the new regulator firing rate positions were matched to previously commissioned values, without performing exhaust gas validation.	Following the failed performance test, Intel contacted a third-party vendor to come to site to perform corrective maintenance on the unit. The vendor completed re-tuning of the unit on the day of the failed performance test. The unit was then re-tested on the morning of 1/13/2023. The results of the performance test demonstrated that the unit had returned to compliance with the NOx emission limit. Intel notified MCAQD by phone of the failed performance test on 1/12/23, and submitted and excess emissions/deviation report to MCAQD on 1/8/23.	The following preventative measures were developed during a preliminary internal after-action review: 1. Refresh mechanical module on Title V requirements for mechanical systems. 2. Ensure tuning procedures include air permit emission limits, performance of exhaust gas analysis, and verification of compliance with the applicable limits. This deviation will be also included in the H1 2023 semi-annual report and will be updated to describe any revisions and/or additions to the above preventative measures.

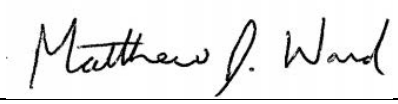
2022 H2 Semi-Annual Monitoring Report
Intel Ocotillo Facility
Chandler, Arizona

1. Monitoring System Shutdowns

No monitoring system shutdowns occurred during the reporting period.

2. Responsible Official Certification

I certify, based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

Matt Ward	Vice President, Manufacturing, Supply Chain and Operations Factory Manager, Ocotillo Technology Fabrication
Printed Name	**Title**
	1/26/2023
Signature	**Date**

Attachment A
Data Relied Upon for PAL Pollutant Emissions Calculations

Section A. Emergency Engines and Fire Pumps: NOx, CO, PM, PM_{10}, $PM_{2.5}$, VOC, and SO_2 Emissions

Table 3-1. NOx, CO, PM, PM_{10}, $PM_{2.5}$, VOC, SO_2 Emission Factors for Emergency Generator Engines and Fire Pump Engines

ID	Emissions Unit	Fab	NOx	CO	$PM/PM_{10}/PM_{2.5}$ [1]	VOC	SO_2
			(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
F12-03-EGEN-1	3516 D1TA / #11147-01 (gen 1)	Fab 12	58.70	7.64	0.43	0.28	0.03
F12-03-EGEN-2	3516 D1TA / #11147-02 (gen 2)	Fab 12	58.70	7.64	0.43	0.28	0.03
F12-03-EGEN-3	3516 D1TA / #11147-03 (gen 3)	Fab 12	58.70	7.64	0.43	0.28	0.03
F12-03-EGEN-4	3516 D1TA / #11976 (gen 4)	Fab 12	58.70	7.64	0.43	0.28	0.03
F12-03-EGEN-5	3516 D1TA / #16894 (gen 5)	Fab 12	58.58	7.82	0.43	0.23	0.03
F12-ASH1-EGEN604-1A-01	3412C D1TA / #3FZ08267 (Litho)	Fab 12	12.22	0.30	0.56	0.07	0.01
F12-03-LSCGEN-1	F12 Litho Gen 1A 3516 - HD (Litho)	Fab 12	50.59	6.01	0.41	1.10	0.04
F12-03-LSCGEN-2	F12 Litho Gen 2A 3516 - HD (Litho)	Fab 12	50.59	6.01	0.41	1.10	0.04
F12-03-LSCGEN-3	F12 Litho Gen 3A 3516 - HD (Litho)	Fab 12	50.59	6.01	0.41	1.10	0.04
F22-10-CPS-GEN-1	3516 D1TA / 24Z09816 (CPS gen 1)	Fab 32S	32.86	6.02	1.14	0.45	0.02
F22-10-CPS-GEN-2	3516 D1TA / 24Z09825 (CPS gen 2)	Fab 32S	32.86	6.02	1.14	0.45	0.02
F22-10-CPS-GEN-3	3516 D1TA / 24Z09820 (CPS gen 3)	Fab 32S	32.86	6.02	1.14	0.45	0.02
F22-10-CPS-GEN-4	3516 D1TA / 24Z09814 (CPS Gen 4)	Fab 32S	32.86	6.02	1.14	0.45	0.02
F22-10-EGEN-1	DQKB / I000148784 (Gen 1 regular)	Fab 32S	45.09	5.80	0.64	1.29	3.74
F22-10-EGEN-2	DQKB / I000148786 (Gen 2 regular)	Fab 32S	45.09	5.80	0.64	1.29	3.74
F22-10-EGEN-3	DQKB / I000148785 (Gen 3 regular)	Fab 32S	45.09	5.80	0.64	1.29	3.74
F22-10-EGEN-4	DQKB / I000146278 (Gen 4 regular)	Fab 32S	45.09	5.80	0.64	1.29	3.74
F32-13-EGEN-1	DQKC / E060920878 (gen 1)	Fab 32	45.09	5.80	0.64	1.29	3.74
F32-13-EGEN-2	DQKC / E060920879 (gen 2)	Fab 32	45.09	5.80	0.64	1.29	3.74
F32-13-EGEN-3	DQKC / E060920877 (gen 3)	Fab 32	45.09	5.80	0.64	1.29	3.74
F32-13-EGEN-4	DQKAB / I080208703 (gen 4)	Fab 32	34.11	1.16	0.26	0.71	0.71
F32-09-LCSGEN-1	3516C D1TA / G5J00197	Fab 32	34.89	1.91	0.17	0.69	0.04
F32-09-LCSGEN-2	3516C D1TA / G5J00191	Fab 32	34.89	1.91	0.17	0.69	0.04
F22-EC2-LCSGEN-3	2000-XC6DT2 / New - Litho 3	Fab 32S	34.85	4.02	0.37	0.67	0.04
F22-EC2-LCSGEN-4	2000-XC6DT2 / New - Litho 4	Fab 32S	34.85	4.02	0.37	0.67	0.04
F42-BRW-GEN1	C15-D1TA BRW Tank	Fab 42	4.01	0.64	0.06	0.05	1.12
F42-17-EGEN-1A	DQLE-1 (1A)	Fab 42	46.41	1.54	0.73	1.05	0.81
F42-17-EGEN-1B	DQLE-2 (1B)	Fab 42	46.41	1.54	0.73	1.05	0.81
F42-GEN-1C	DQLE-3 (1C)	Fab 42	46.41	1.54	0.73	1.05	0.81
F42-17-EGEN-2A	DQLE-4 (2A)	Fab 42	46.41	1.54	0.73	1.05	0.81
F42-17-EGEN-2B	DQLE-5 (2B)	Fab 42	46.41	1.54	0.73	1.05	0.81
F42-GEN-2C	DQLE-6 (2C)	Fab 42	46.41	1.54	0.73	1.05	0.81
F42-GEN-3A	DQLE-7 (3A)	Fab 42	46.41	1.54	0.73	1.05	0.81
F42-GEN-3B	DQLE-8 (3B)	Fab 42	46.41	1.54	0.73	1.05	0.81
F42-GEN-3C	DQLE-9 (3C)	Fab 42	46.41	1.54	0.73	1.05	0.81
F42-GEN-1D	DQLE-10 (1D)	Fab 42	46.41	1.54	0.73	1.05	0.81
F42-GEN-2D	DQLE-11 (2D)	Fab 42	46.41	1.54	0.73	1.05	0.81
F42-GEN-3D	DQLE-12 (3D)	Fab 42	46.41	1.54	0.73	1.05	0.81
F12-CAP-X72AGENOCCA	DQCA CAP Water Engine	Fab 12	12.08	0.56	0.13	0.48	0.27
OW1-XWTG1X23A	C3000 D6e IWW (gen 1)	Fab 42/WATR	49.66	1.99	0.43	0.66	0.05
F12-FPHS-GEN-01	3306BT Fire Pump 1	Fab 12	8.53	1.84	0.61	0.68	0.56
F12-FPHS-GEN-02	3306BT Fire Pump 2	Fab 12	8.53	1.84	0.61	0.68	0.56
TBD	OC30 EGEN 1 [2]	Fab 32	1.51	0.18	0.03	0.02	0.08

Notes:

1 - PM emissions ≤ 2.5µm in size; therefore, emission factors represent total PM, PM10, and PM2.5.

2 - OC30 EGEN 1 was in the process of commissioning during H2 2022; emissions are associated with start up activities.

Table 3-2. Hours of Operation for Emergency Generator Engines and Fire Pump Engines

ID	Emissions Unit	Run Time (hr)					
		Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
F12-03-EGEN-1	3516 D1TA / #11147-01 (gen 1)	0.6	0.7	0.4	1.4	0.7	0.2
F12-03-EGEN-2	3516 D1TA / #11147-02 (gen 2)	0.6	0.7	1.4	0.5	0.1	0.5
F12-03-EGEN-3	3516 D1TA / #11147-03 (gen 3)	0.6	0.7	1.4	0.5	0.7	0.0
F12-03-EGEN-4	3516 D1TA / #11976 (gen 4)	0.0	0.6	1.4	0.5	0.8	0.0
F12-03-EGEN-5	3516 D1TA / #16894 (gen 5)	1.0	0.0	2.0	0.0	1.0	0.0
F12-ASH1-EGEN604-1A-01	3412C D1TA / #3FZ08267 (Litho)	0.7	0.0	0.5	1.2	1.1	0.2
F12-03-LSCGEN-1	F12 Litho Gen 1A 3516 - HD (Litho)	0.7	0.0	0.9	0.8	0.8	0.2
F12-03-LSCGEN-2	F12 Litho Gen 2A 3516 - HD (Litho)	0.7	0.0	0.9	0.8	1.2	0.2
F12-03-LSCGEN-3	F12 Litho Gen 3A 3516 - HD (Litho)	0.0	1.0	0.0	1.0	0.0	0.0
F22-10-CPS-GEN-1	3516 D1TA / 24Z09816 (CPS gen 1)	0.3	0.5	2.4	0.5	0.4	0.4
F22-10-CPS-GEN-2	3516 D1TA / 24Z09825 (CPS gen 2)	1.4	0.6	0.5	0.5	0.5	0.2
F22-10-CPS-GEN-3	3516 D1TA / 24Z09820 (CPS gen 3)	0.2	0.5	0.7	0.5	0.5	0.4
F22-10-CPS-GEN-4	3516 D1TA / 24Z09814 (CPS Gen 4)	0.2	0.5	0.5	0.8	0.4	0.4
F22-10-EGEN-1	DQKB / I000148784 (Gen 1 regular)	0.0	0.6	0.5	0.5	0.6	0.0
F22-10-EGEN-2	DQKB / I000148786 (Gen 2 regular)	1.0	1.0	0.0	1.0	0.0	0.0
F22-10-EGEN-3	DQKB / I000148785 (Gen 3 regular)	0.0	1.0	0.0	1.0	0.0	0.0
F22-10-EGEN-4	DQKB / I000146278 (Gen 4 regular)	0.3	0.5	0.5	0.4	0.6	0.0
F32-13-EGEN-1	DQKC / E060920878 (gen 1)	0.0	1.0	0.0	1.0	0.0	0.0
F32-13-EGEN-2	DQKC / E060920879 (gen 2)	1.0	0.0	1.0	1.0	0.0	0.0
F32-13-EGEN-3	DQKC / E060920877 (gen 3)	1.0	0.0	1.0	0.0	0.0	1.0
F32-13-EGEN-4	DQKAB / I080208703 (gen 4)	1.0	0.0	1.0	0.0	1.0	0.0
F32-09-LCSGEN-1	3516C D1TA / G5J00197	0.5	0.6	0.6	0.4	0.4	0.0
F32-09-LCSGEN-2	3516C D1TA / G5J00191	0.4	0.1	0.1	0.0	0.0	0.0
F22-EC2-LCSGEN-3	2000-XC6DT2 / New - Litho 3	0.6	0.6	0.5	0.0	0.1	0.0
F22-EC2-LCSGEN-4	2000-XC6DT2 / New - Litho 4	0.6	0.5	0.5	0.0	0.3	0.0
F42-BRW-GEN1	C15-D1TA BRW Tank	0.5	0.4	1.4	0.3	0.4	0.8
F42-17-EGEN-1A	DQLE-1 (1A)	0.0	0.0	0.6	0.8	0.7	0.0
F42-17-EGEN-1B	DQLE-2 (1B)	0.0	0.0	0.5	0.8	0.0	0.0
F42-GEN-1C	DQLE-3 (1C)	0.0	0.0	0.6	0.3	0.6	0.0
F42-17-EGEN-2A	DQLE-4 (2A)	0.0	0.0	0.5	0.3	0.0	0.0
F42-17-EGEN-2B	DQLE-5 (2B)	0.0	0.0	0.1	0.5	0.2	0.0
F42-GEN-2C	DQLE-6 (2C)	0.0	0.0	0.5	0.8	0.6	0.0
F42-GEN-3A	DQLE-7 (3A)	0.0	0.0	0.5	0.3	0.7	0.0
F42-GEN-3B	DQLE-8 (3B)	0.0	0.0	0.6	0.3	0.6	0.0
F42-GEN-3C	DQLE-9 (3C)	0.0	0.0	0.6	0.7	0.6	0.0
F42-GEN-1D	DQLE-10 (1D)	0.0	0.0	0.6	0.3	0.0	0.0
F42-GEN-2D	DQLE-11 (2D)	0.0	0.0	0.6	0.8	0.6	0.0
F42-GEN-3D	DQLE-12 (3D)	0.0	0.0	0.5	0.7	0.6	0.0
F12-CAP-X72AGENOCCA	DQCA CAP Water Engine	2.5	0.4	0.0	1.0	0.8	0.0
OW1-XWTG1X23A	C3000 D6e IWW (gen 1)	0.0	0.0	0.6	0.7	0.0	0.0
F12-FPHS-GEN-01	3306BT Fire Pump 1	1.6	3.0	2.1	2.8	3.2	6.1
F12-FPHS-GEN-02	3306BT Fire Pump 2	7.1	1.8	4.0	3.1	3.7	18.2
TBD	OC30 EGEN 1 [(1)]	0.0	0.0	0.0	0.0	3.9	0.0

Notes:

1 - OC30 EGEN 1 was in the process of commissioning during H2 2022; emissions are associated with start up activities.

Section B. Boilers & Trimix: PM, PM_{10}, $PM_{2.5}$, SO_2, and VOC Emissions

Table 3-3. PM, PM_{10}, $PM_{2.5}$, VOC and SO_2 Emission Factors for Boilers & Trimix

ID	Boiler	Fab	$PM/PM_{10}/PM_{2.5}$ [1] (lb/mmscf)	VOC (lb/mmscf)	SO_2 (lb/mmscf)
BLR-32-GD3-1	F12 Boiler 1	Fab 12	7.60	5.50	0.60
BLR-32-GD3-2	F12 Boiler 2	Fab 12	7.60	5.50	0.60
BLR-32-GD3-3	F12 Boiler 3	Fab 12	7.60	5.50	0.60
BLR-32-GD3-4	F12 Boiler 4	Fab 12	7.60	5.50	0.60
BLR-115-1-210	F32S Boiler 1	Fab 32S	7.60	5.50	0.60
BLR-115-2-210	F32S Boiler 2	Fab 32S	7.60	5.50	0.60
BLR-115-3-210	F32S Boiler 3	Fab 32S	7.60	5.50	0.60
BLR-115-4-210	F32S Boiler 4	Fab 32S	7.60	5.50	0.60
BLR-115-5-210	F32S Boiler 5	Fab 32S	7.60	5.50	0.60
BLR-115-31-210	F32 Boiler 2	Fab 32	7.60	5.50	0.60
BLR-115-1-10	F42 Boiler 1	Fab 42	7.60	5.50	0.60
BLR-115-2-10	F42 Boiler 2	Fab 42	7.60	5.50	0.60
BLR-115-3-10	F42 Boiler 3	Fab 42	7.60	5.50	0.60
BLR-115-4-10	F42 Boiler 4	Fab 42	7.60	5.50	0.60
PWB2-OX293-0-70	F32S/32 Trimix A	Fab 32/32S	7.60	5.50	0.60
PWB2B-OX293-0-70	F32S/32 Trimix B	Fab 32/32S	7.60	5.50	0.60
F42-PB1A-OX293-0-70	F42 Trimix 1	Fab 42	7.60	5.50	0.60

Notes:

1 - PM emissions ≤ 2.5µm in size; therefore, emission factors represent total PM, PM_{10}, and $PM_{2.5}$.

Table 3-4. Natural Gas Usage for Boilers & Trimix

ID	Boiler	Natural Gas Usage (mmscf)					
		Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
BLR-32-GD3-1	F12 Boiler 1	0.08	0.01	0.11	0.07	1.69	0.10
BLR-32-GD3-2	F12 Boiler 2	0.09	1.15	11.59	6.50	17.26	21.14
BLR-32-GD3-3	F12 Boiler 3	8.37	7.21	8.44	9.93	12.81	11.40
BLR-32-GD3-4	F12 Boiler 4	16.71	16.65	5.65	19.94	20.11	20.12
BLR-115-1-210	F32S Boiler 1	4.24	4.26	4.54	6.75	8.02	8.69
BLR-115-2-210	F32S Boiler 2	0.00	0.00	0.00	0.00	2.80	9.60
BLR-115-3-210	F32S Boiler 3	6.06	6.01	6.05	8.40	4.50	0.01
BLR-115-4-210	F32S Boiler 4	0.15	0.03	0.03	2.17	6.64	0.39
BLR-115-5-210	F32S Boiler 5	0.15	0.16	0.18	0.38	7.33	16.00
BLR-115-31-210 [1]	F32 Boiler 2	0.00	0.00	0.00	0.00	0.00	0.00
BLR-115-1-10	F42 Boiler 1	0.38	0.05	0.07	0.07	0.02	1.58
BLR-115-2-10	F42 Boiler 2	0.02	0.02	0.03	0.03	0.10	0.40
BLR-115-3-10	F42 Boiler 3	1.14	3.67	3.79	3.79	3.30	2.72
BLR-115-4-10	F42 Boiler 4	1.23	0.14	0.02	0.02	0.01	0.01
PWB2-OX293-0-70	F32S/32 Trimix A	0.51	0.52	0.23	0.12	0.49	0.33
PWB2B-OX293-0-70	F32S/32 Trimix B	0.62	0.61	0.58	0.53	0.21	0.36
F42-PB1A-OX293-0-70	F42 Trimix 1	0.43	0.47	0.50	0.41	0.22	0.22

Notes:

1 - On January 31, 2019, Intel notified MCAQD that this emission unit had been removed from service. The natural gas line feeding this unit is disconnected and capped.

Section C. Boilers & Trimix: NOx and CO Emissions

Table 3-5. NOx and CO Emission Factors for Boilers & Trimix

ID	Boiler	Fab	NO_X	CO
			(lb/hr)	(lb/hr)
BLR-32-GD3-1	F12 Boiler 1	Fab 12	0.41	0.000
BLR-32-GD3-2	F12 Boiler 2	Fab 12	0.58	0.000
BLR-32-GD3-3	F12 Boiler 3	Fab 12	0.18	0.037
BLR-32-GD3-4	F12 Boiler 4	Fab 12	0.38	0.027
BLR-115-1-210	F32S Boiler 1	Fab 32S	0.14	0.010
BLR-115-2-210	F32S Boiler 2	Fab 32S	0.20	0.012
BLR-115-3-210	F32S Boiler 3	Fab 32S	0.10	0.007
BLR-115-4-210	F32S Boiler 4	Fab 32S	0.11	0.007
BLR-115-5-210	F32S Boiler 5	Fab 32S	0.17	0.000
BLR-115-31-210	F32 Boiler 2	Fab 32	0.10	0.043
BLR-115-1-10	F42 Boiler 1	Fab 42	0.18	0.000
BLR-115-2-10	F42 Boiler 2	Fab 42	0.23	0.000
BLR-115-3-10	F42 Boiler 3	Fab 42	0.23	0.000
BLR-115-4-10	F42 Boiler 4	Fab 42	0.23	0.000
PWB2-OX293-0-70	F32S/32 Trimix A	Fab 32/32S	0.14	0.270
PWB2B-OX293-0-70	F32S/32 Trimix B	Fab 32/32S	0.13	0.005
F42-PB1A-OX293-0-70	F42 Trimix 1	Fab 42	0.10	0.014

Notes:

The Quality Assurance/Quality Control (QA/QC) data for the boiler and trimix emission factors are presented in the respective compliance test reports previously submitted to MCAQD. In an effort to keep this Semi-Annual Monitoring Report concise, that QA/QC data is not duplicated here.

Table 3-6. Operating Hours for Boilers & Trimix

ID	Boiler	Run Time (hr)					
		Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
BLR-32-GD3-1	F12 Boiler 1	62	0	3	0	59	0
BLR-32-GD3-2	F12 Boiler 2	2	54	473	245	591	744
BLR-32-GD3-3	F12 Boiler 3	744	692	720	744	720	744
BLR-32-GD3-4	F12 Boiler 4	744	744	247	651	720	744
BLR-115-1-210	F32S Boiler 1	723	744	720	744	720	744
BLR-115-2-210	F32S Boiler 2	0	0	0	0	208	726
BLR-115-3-210	F32S Boiler 3	744	744	720	744	347	0
BLR-115-4-210	F32S Boiler 4	22	0	0	193	503	21
BLR-115-5-210	F32S Boiler 5	0	0	0	0	378	744
BLR-115-31-210 [1]	F32 Boiler 2	0	0	0	0	0	0
BLR-115-1-10	F42 Boiler 1	137	16	21	3	334	262
BLR-115-2-10	F42 Boiler 2	0	0	2	1	85	0
BLR-115-3-10	F42 Boiler 3	169	677	714	743	470	571
BLR-115-4-10	F42 Boiler 4	575	68	8	3	1	119
PWB2-OX293-0-70	F32S/32 Trimix A	744	744	720	744	720	744
PWB2B-OX293-0-70	F32S/32 Trimix B	744	744	720	744	720	744
F42-PB1A-OX293-0-70	F42 Trimix 1	744	744	720	744	720	744

Notes:

1 - On January 31, 2019, Intel notified MCAQD that this emission unit had been removed from service. The natural gas line feeding this unit is disconnected and capped.

Section D. General Fab Natural Gas Combustion Emissions: NOx, CO, PM, PM_{10}, $PM_{2.5}$, SO_2, and VOC Emissions

Table 3-7. NOx, CO, PM, PM_{10}, $PM_{2.5}$, VOC, and SO_2 Emission Factors for General Fab Natural Gas Combustion Units

Emission Units	Location of Emissions Unit	NO_X	CO	$PM/PM_{10}/PM_{2.5}$ [1]	VOC	SO_2
		(lb/mmscf)	(lb/mmscf)	(lb/mmscf)	(lb/mmscf)	(lb/mmscf)
General Fab Natural Gas Combustion	Site-Wide	100.00	84.00	7.60	5.50	0.60

Notes:

1 - PM emissions ≤ 2.5µm in size; therefore, emission factors represent total PM, PM10, and PM2.5.

Table 3-8. General Fab Natural Gas Usage

Emission Units	Natural Gas Usage in MMSCF					
	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
General Fab Natural Gas Combustion	26.62	17.84	16.53	21.11	22.93	18.58

Section E. Cooling Towers: PM, PM_{10}, $PM_{2.5}$ Emissions

Table 3-9. Cooling Tower Conductivity & Total Dissolved Solids (TDS) Concentrations

ID	Cooling Tower	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
Conductivity (µS)							
N/A	MSB [1]	3,399	3,450	3,367	4,654	3,302	2,370
F12-CT-29-GG5-(001 to 010)	F12	4,693	4,118	3,827	3,088	2,837	3,624
F22-OCC2-CT-114-(1 to 7)-210	F32S	4,798	4,281	4,202	4,436	3,552	3,217
F32-CT-114-(31 to 36)-210	F32	4,772	3,602	4,109	3,959	3,564	2,565
F42-BC1A-CT114-(1 to 14)-10	F42	4,594	4,349	4,184	3,797	3,209	3,081
TBD	F32 OC30 Packaged [2]	-	744	2,207	2,996	2,955	2,311
TDS (ppm)							
N/A	MSB [1]	2,277	2,311	2,256	3,118	2,212	1,588
F12-CT-29-GG5-(001 to 010)	F12	3,145	2,759	2,564	2,069	1,901	2,428
F22-OCC2-CT-114-(1 to 7)-210	F32S	3,215	2,868	2,815	2,972	2,380	2,155
F32-CT-114-(31 to 36)-210	F32	3,197	2,413	2,753	2,652	2,388	1,718
F42-BC1A-CT114-(1 to 14)-10	F42	3,078	2,914	2,803	2,544	2,150	2,064
TBD	F32 OC30 Packaged [2]	-	499	1,479	2,007	1,980	1,549

Notes:

1 - MSB cooling towers are categorized as insignificant activities but are included here for consistency with previous reporting.

2 - The F32 OC30 packaged cooling towers were in the process of commissioning during H2 2022; emissions are associated with start up activities.

Table 3-10. Cooling Tower Flow Rates

ID	Cooling Tower	Flow Rates (gpm)					
		Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
N/A	MSB [1]	2,820	2,820	2,820	2,820	2,820	2,820
F12-CT-29-GG5-(001 to 010)	F12	68,548	72,300	72,300	72,300	57,616	60,103
F22-OCC2-CT-114-(1 to 7)-210	F32S	30,720	30,720	30,720	30,720	30,720	30,720
F32-CT-114-(31 to 36)-210	F32	36,403	45,921	36,503	38,805	33,250	34,740
F42-BC1A-CT114-(1 to 14)-10	F42	85,640	91,271	84,979	78,240	64,992	60,704
TBD	F32 OC30 Packaged [2]	-	6,295	11,390	6,980	7,972	7,980

Notes:

1 - MSB cooling towers are categorized as insignificant activities but are included here for consistency with previous reporting.

2 - The F32 OC30 packaged cooling towers were in the process of commissioning during H2 2022; emissions are associated with start up activities.

Section F. Cooling Towers: VOC Emissions

Table 3-11. VOC Chemical Usage in Cooling Towers

Cooling Tower	Cooling Tower Chemical Usage (lb)					
	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
Site	0.92	0.92	1.54	1.08	1.69	1.54

Section G. Storage Silos: PM, PM_{10}, and $PM_{2.5}$ Emissions

Table 3-12. PM, PM_{10}, and $PM_{2.5}$ Emission Factors for Silos

ID	Lime Silo	Fab	$PM/PM_{10}/PM_{2.5}$[1] (lb PM/ton of material)
F12-TK266-1-40	F12 HFW Lime Silo	Fab 12	0.0049
OC9-TK266-1-40	F32S HFW Lime Silo	Fab 32S	0.0049
PWB2-TK266-1-40	F32 HFW Lime Silo	Fab 32	0.0049
OCPB1A-ZSC266-1-48A	F42 HFW Lime Silo	Fab 42	0.0049
OCPB1B-ZSC266-1-48A	F42 HFW Lime Silo	Fab 42	0.0049
OW1-TK934-1-15	IWW Sodium Bicarbonate Silo	Fab 42	0.0049

Notes:

1 - PM emissions ≤ 2.5µm in size; therefore, emission factors represent total PM, PM10, and PM2.5.

Table 3-13. Storage Silo Loading Frequency

ID	Storage Silo	Number of Silo Loads					
		Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
F12-TK266-1-40	F12 HFW Lime Silo	2	1	0	3	2	1
OC9-TK266-1-40	F32S HFW Lime Silo	2	2	2	3	3	1
PWB2-TK266-1-40	F32 HFW Lime Silo	2	2	3	3	3	1
OCPB1A-ZSC266-1-48A	F42 HFW Lime Silo	2	2	3	4	2	3
OCPB1B-ZSC266-1-48A	F42 HFW Lime Silo	3	4	4	3	3	2
OW1-TK934-1-15	IWW Sodium Bicarbonate Silo	0	0	0	0	0	0

Section H. Monitoring System for Permitted VOC Abatement Control Devices (Natural Gas Combustions Emissions Only): SO_2 Emissions

Table 3-14. SO_2 Emission Factors for VOC Abatement Control Devices

ID	Control Device	Fab	SO_2 (lb/mmscf)
VOC-16-FK2-01	RCTO 1	Fab 12	0.60
VOC-16-FK2-02	RCTO 2	Fab 12	0.60
VOC-16-FM2-01	RCTO 3	Fab 12	0.60
VOC-16-FM2-02	RCTO 4	Fab 12	0.60
OCF1C-VOC-138-1-20	LCE RCTO 1	Fab 12	0.60
OCF1C-VOC-138-2-20	LCE RCTO 2	Fab 12	0.60
OCF1C-VOC-138-3-00	LCE RCTO 3	Fab 12	0.60
OCF1C-VOC-138-4-00	LCE RCTO 4	Fab 12	0.60
VOC-138-3-120	RCTO 3	Fab 32S	0.60
VOC-138-4-120	RCTO 4	Fab 32S	0.60
VOC-138-5-120	RCTO 5	Fab 32S	0.60
VOC-138-06-120	RCTO 6	Fab 32S	0.60
VOC-138-01-120	RCTO 1	Fab 32	0.60
VOC-138-02-120	RCTO 2	Fab 32	0.60
VOC-138-03-120	RCTO 3	Fab 32	0.60
OCF3B-VOC138-1-20	RCTO 4	Fab 32	0.60
OCF3B-VOC138-2-20	RCTO 5	Fab 32	0.60
OCF3B-VOC138-3-20	RCTO 6	Fab 32	0.60
OCFS1A-VOC-138-1-00	FSB RCTO 1	Fab 42	0.60
OCFS1A-VOC-138-2-00	FSB RCTO 2	Fab 42	0.60
FB1A-VOC138-1-00	RCTO 1	Fab 42	0.60
FB1A-VOC138-2-00	RCTO 2	Fab 42	0.60
FB1A-VOC138-3-00	RCTO 3	Fab 42	0.60
OCFB1A-VOC-138-5-00	RCTO 5	Fab 42	0.60

Notes:

1 - PM emissions ≤ 2.5µm in size; therefore, emission factors represent total PM, PM_{10}, and $PM_{2.5}$.

Table 3-15. Natural Gas Usage for VOC Abatement Control Devices

ID	Control Device	Fab	Natural Gas Usage (mmscf)					
			Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
VOC-16-FK2-01	RCTO 1	Fab 12	0.89	0.91	0.84	0.90	0.86	1.00
VOC-16-FK2-02	RCTO 2	Fab 12	0.78	0.72	0.72	0.74	0.79	0.75
VOC-16-FM2-01	RCTO 3	Fab 12	0.86	0.83	0.81	0.85	0.88	0.94
VOC-16-FM2-02	RCTO 4	Fab 12	1.08	1.03	1.01	1.07	0.55	0.81
OCF1C-VOC-138-1-20	LCE RCTO 1	Fab 12	0.63	1.25	1.03	1.36	1.49	1.59
OCF1C-VOC-138-2-20	LCE RCTO 2	Fab 12	0.02	0.02	0.00	0.00	0.01	0.01
OCF1C-VOC-138-3-00	LCE RCTO 3	Fab 12	0.83	0.73	0.80	0.98	1.17	1.39
OCF1C-VOC-138-4-00	LCE RCTO 4	Fab 12	1.62	1.65	1.51	1.67	1.77	1.93
VOC-138-3-120	RCTO 3	Fab 32S	0.76	0.78	0.78	0.83	0.76	0.79
VOC-138-4-120	RCTO 4	Fab 32S	0.71	0.74	0.72	0.72	0.68	0.87
VOC-138-5-120	RCTO 5	Fab 32S	0.62	0.62	0.62	0.64	0.62	0.67
VOC-138-06-120	RCTO 6	Fab 32S	0.32	0.33	0.33	0.34	0.32	0.34
VOC-138-01-120	RCTO 1	Fab 32	0.89	0.97	0.93	0.97	0.99	1.04
VOC-138-02-120	RCTO 2	Fab 32	0.85	0.86	0.83	0.89	0.86	0.91
VOC-138-03-120	RCTO 3	Fab 32	0.53	0.53	0.51	0.56	0.48	0.52
OCF3B-VOC138-1-20	RCTO 4	Fab 32	0.53	0.57	0.53	0.58	0.59	0.64
OCF3B-VOC138-2-20	RCTO 5	Fab 32	0.71	0.64	0.48	0.71	0.70	0.75
OCF3B-VOC138-3-20	RCTO 6	Fab 32	1.15	1.19	1.18	1.20	1.20	1.33
OCFS1A-VOC-138-1-00	FSB RCTO 1 [1]	Fab 42	0.01	0.00	0.00	0.00	0.00	0.00
OCFS1A-VOC-138-2-00	FSB RCTO 2 [1]	Fab 42	0.14	0.00	0.00	0.00	0.00	0.00
FB1A-VOC138-1-00	RCTO 1	Fab 42	0.56	0.74	0.47	0.11	0.00	0.00
FB1A-VOC138-2-00	RCTO 2	Fab 42	1.28	1.25	1.11	1.12	1.45	2.17
FB1A-VOC138-3-00	RCTO 3	Fab 42	1.37	1.33	1.22	1.32	1.79	2.25
OCFB1A-VOC-138-5-00	RCTO 5	Fab 42	0.59	0.53	0.83	0.98	1.38	0.83

Notes:

1 - Both FSB RCTOs were permanently shut down on 7/12/2022 and removed from the facility on 9/16/2022.

Section I. Monitoring System for Fab Emission Units (VOC Abatement Units, Wet Acid Scrubbers, and Ammonia Scrubbers): VOC Emissions

Table 3-16. Site-Wide VOC Performance Testing Results and Monthly Production Index (PI) [1]

Stack Type	VOC Testing Result	Monthly Production Indexes					
	(lb/hr)	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
RCTO VOC Abatement Units	0.57	0.89	0.77	0.48	0.36	0.50	0.60
Wet Acid Scrubbers	0.67	0.91	0.79	0.50	0.38	0.51	0.62
Ammonia Scrubbers	8.89	0.89	0.77	0.48	0.36	0.50	0.60

Notes:

The Quality Assurance/Quality Control (QA/QC) data for the process emission factors that were determined via performace testing are presented in the respective compliance test reports previously submitted to MCAQD. In an effort to keep this Semi-Annual Monitoring Report concise, that QA/QC data is not duplicated here.

1 - Emission factors are based on performance testing conducted in 2022 for all units, except the Fab 42 VOC abatement units and ammonia scrubbers, which are based on 2021 performance testing results.

Table 3-17. Monthly Fab Operating Hours

Fab	Operating Hours					
	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
Fab 12, Fab 32S, Fab 32, Fab 42	744	744	720	744	720	744

Section J. Monitoring System for Fab Emission Units (Wet Acid Scrubbers and VOC Abatement Units): CO, NOx, PM, PM10, and PM2.5 Emissions

Table 3-18. Site-Wide CO, NOx, PM, PM_{10}, and $PM_{2.5}$ Stack Testing Results and Monthly Production Index (PI) [1]

PAL Pollutant	Stack Type	Testing Result	Monthly Production Indexes					
		(lb/hr)	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
CO	Wet Acid Scrubber	32.72	0.91	0.79	0.50	0.38	0.51	0.62
NOx	Wet Acid Scrubber	18.48	0.91	0.79	0.50	0.38	0.51	0.62
PM, PM10, PM2.5 [2]	Wet Acid Scrubber	5.18	0.91	0.79	0.50	0.38	0.51	0.62
CO	RCTO VOC Abatement Units	3.77	0.89	0.77	0.48	0.36	0.50	0.60
NOx	RCTO VOC Abatement Units	4.14	0.89	0.77	0.48	0.36	0.50	0.60
PM, PM10, PM2.5 [2]	RCTO VOC Abatement Units	1.22	0.89	0.77	0.48	0.36	0.50	0.60
NOx	Ammonia Scrubbers [3]	4.01	0.89	0.77	0.48	0.36	0.50	0.60

Notes:

The Quality Assurance/Quality Control (QA/QC) data for the process emission factors that were determined via performace testing are presented in the respective compliance test reports previously submitted to MCAQD. In an effort to keep this Semi-Annual Monitoring Report concise, that QA/QC data is not duplicated here.

1 - Emission factors are based on performance testing conducted in 2022, except for Fab 42 VOC abatement unit emissions for CO, NOx, and PM, which are based on 2021 performance testing results.

2 - PM emissions ≤ 2.5µm in size; therefore, emission factors represent total PM, PM10, and PM2.5.

3 - In accordance with the notification provided to MCAQD by phone on 8/11/2022 and in writing on 8/17/2022, Intel began accounting for NOx emissions from the ammonia scrubbers in July 2022. The data used to calculate those emissions have been provided in the table above since the calculation methodology is the same as that for CO, NOx, and PM from wet acid scrubbers and RCTO VOC abatement units.

Section K. Monitoring System for Fab Emission Units (Process Emissions Only): SO_2 and Fluoride Emissions (Fluoride emissions do not include HF)

The emission factors presented in this section, by chemical, are based on actual tool testing from Intel's Research and Development facility in Oregon and would provide a competitor with specific trade secret recipe information, which would cause harm to Intel's competitive advantage if released to the public. This confidentiality claim meets the requirements of Arizona Revised Statute (ARS) §49-487 and Maricopa County Air Quality Department Rule 200 and Intel will submit a confidential list of these Emission Factors.

Table 3-19. Emission Factors and Weighting Factors for SO_2 Process Emissions and Monthly Chemical Usage

Compound			Chem 1	Chem 2
Emission Factor	Tech A	(lb/lb)	0.00	0.00
	Tech B		0.25	0.77
	Tech C		0.03	0.22
Weighting Factor (%)	Tech A	Jul-22	1.8%	0.0%
		Aug-22	2.8%	0.0%
		Sep-22	5.5%	0.0%
		Oct-22	7.2%	0.0%
		Nov-22	4.8%	0.0%
		Dec-22	2.8%	0.0%
	Tech B	Jul-22	17.0%	6.7%
		Aug-22	16.5%	6.6%
		Sep-22	8.7%	3.4%
		Oct-22	8.4%	3.3%
		Nov-22	6.9%	2.6%
		Dec-22	4.7%	1.7%
	Tech C	Jul-22	81.2%	93.3%
		Aug-22	80.6%	93.4%
		Sep-22	85.8%	96.6%
		Oct-22	84.4%	96.7%
		Nov-22	88.4%	97.4%
		Dec-22	92.4%	98.3%
Chemical Usage	(Lbs)	Jul-22	3,992	503
		Aug-22	4,745	586
		Sep-22	8,572	922
		Oct-22	2,509	335
		Nov-22	3,115	1,005
		Dec-22	2,341	335

Table 3-20. Emission Factors and Weighting Factors for Fluoride Process Emissions and Monthly Chemical Usage (Excludes HF)

Compound			Chem 1	Chem 2	Chem 3	Chem 4	Chem 5	Chem 6	Chem 7	Chem 8	Chem 9	Chem 10
Emission Factor	Tech A	(lb/lb)	-	6.50E-09	5.02E-02	1.67E-01	2.06E-02	1.00E+00	-	-	1.58E-02	-
	Tech B		-	6.50E-09	5.69E-02	1.67E-01	2.06E-02	1.00E+00	0.00E+00	0.00E+00	1.58E-02	6.29E-02
	Tech C		1.78E-02	9.49E-05	1.59E-02	1.23E-01	7.02E-02	1.00E+00	1.14E-03	5.15E-04	1.41E-02	3.79E-03
Weighting Factor (%)	Tech A	Jul-22	0.0%	0.0%	1.0%	1.0%	1.0%	16.3%	1.8%	1.8%	1.8%	1.8%
		Aug-22	0.0%	0.0%	1.5%	1.5%	1.5%	23.6%	2.8%	2.8%	2.8%	2.8%
		Sep-22	0.0%	0.0%	3.0%	3.0%	3.0%	53.5%	5.5%	5.5%	5.5%	5.5%
		Oct-22	0.0%	0.0%	4.0%	4.0%	4.0%	61.0%	7.2%	7.2%	7.2%	7.2%
		Nov-22	0.0%	0.0%	2.6%	2.6%	2.6%	55.5%	4.8%	4.8%	4.8%	4.8%
		Dec-22	0.0%	0.0%	1.5%	1.5%	1.5%	52.2%	2.8%	2.8%	2.8%	2.8%
	Tech B	Jul-22	0.0%	1.5%	14.0%	14.0%	14.0%	83.7%	17.0%	17.0%	17.0%	17.0%
		Aug-22	0.0%	1.5%	13.7%	13.7%	13.7%	76.4%	16.5%	16.5%	16.5%	16.5%
		Sep-22	0.0%	0.8%	7.2%	7.2%	7.2%	46.5%	8.7%	8.7%	8.7%	8.7%
		Oct-22	0.0%	0.7%	7.0%	7.0%	7.0%	39.0%	8.4%	8.4%	8.4%	8.4%
		Nov-22	0.0%	0.6%	5.7%	5.7%	5.7%	44.5%	6.9%	6.9%	6.9%	6.9%
		Dec-22	0.0%	0.4%	3.8%	3.8%	3.8%	47.8%	4.7%	4.7%	4.7%	4.7%
	Tech C	Jul-22	100.0%	98.5%	85.0%	85.0%	85.0%	0.0%	81.2%	81.2%	81.2%	81.2%
		Aug-22	100.0%	98.5%	84.7%	84.7%	84.7%	0.0%	80.6%	80.6%	80.6%	80.6%
		Sep-22	100.0%	99.2%	89.8%	89.8%	89.8%	0.0%	85.8%	85.8%	85.8%	85.8%
		Oct-22	100.0%	99.3%	89.0%	89.0%	89.0%	0.0%	84.4%	84.4%	84.4%	84.4%
		Nov-22	100.0%	99.4%	91.8%	91.8%	91.8%	0.0%	88.4%	88.4%	88.4%	88.4%
		Dec-22	100.0%	99.6%	94.7%	94.7%	94.7%	0.0%	92.4%	92.4%	92.4%	92.4%
Chemical Usage	(Lbs)	Jul-22	1040	71	1088	1088	1088	0	3992	3992	3992	3992
		Aug-22	640	0	1360	1360	1360	0	4745	4745	4745	4745
		Sep-22	1000	0	1360	1360	1360	0	8572	8572	8572	8572
		Oct-22	680	0	1088	1088	1088	0	2509	2509	2509	2509
		Nov-22	840	0	1088	1088	1088	0	3115	3115	3115	3115
		Dec-22	680	0	816	816	816	0	2341	2341	2341	2341

Table 3-20. Emission Factors and Weighting Factors for Fluoride Process Emissions and Monthly Chemical Usage (Excludes HF)

Compound			Chem 11	Chem 12	Chem 13	Chem 14	Chem 15	Chem 16	Chem 17	Chem 18	Chem 19	Chem 20
Emission Factor	Tech A	(lb/lb)	-	3.72E-01	-	-	-	3.80E-02	-	6.48E-02	6.41E-02	3.75E-02
	Tech B		6.29E-02	3.72E-01	0.00E+00	1.00E-03	1.00E-03	3.77E-02	0.00E+00	6.48E-02	6.41E-02	1.30E-01
	Tech C		3.79E-03	2.98E-02	7.71E-05	1.12E-05	1.12E-05	6.60E-03	0.00E+00	2.29E-01	2.43E-02	8.47E-03
Weighting Factor (%)	Tech A	Jul-22	1.8%	1.8%	0.0%	0.0%	0.0%	1.0%	1.0%	1.0%	1.0%	1.1%
		Aug-22	2.8%	2.8%	0.0%	0.0%	0.0%	1.5%	1.5%	1.5%	1.5%	1.8%
		Sep-22	5.5%	5.5%	0.0%	0.0%	0.0%	3.1%	3.1%	3.1%	3.1%	3.3%
		Oct-22	7.2%	7.2%	0.0%	0.0%	0.0%	4.1%	4.1%	4.1%	4.1%	4.3%
		Nov-22	4.8%	4.8%	0.0%	0.0%	0.0%	2.7%	2.7%	2.7%	2.7%	2.8%
		Dec-22	2.8%	2.8%	0.0%	0.0%	0.0%	1.6%	1.6%	1.6%	1.6%	1.6%
	Tech B	Jul-22	17.0%	17.0%	1.5%	6.7%	6.7%	21.2%	21.2%	21.2%	21.2%	5.7%
		Aug-22	16.5%	16.5%	1.5%	6.6%	6.6%	20.8%	20.8%	20.8%	20.8%	5.5%
		Sep-22	8.7%	8.7%	0.8%	3.4%	3.4%	11.4%	11.4%	11.4%	11.4%	2.8%
		Oct-22	8.4%	8.4%	0.7%	3.3%	3.3%	11.0%	11.0%	11.0%	11.0%	2.7%
		Nov-22	6.9%	6.9%	0.6%	2.6%	2.6%	9.0%	9.0%	9.0%	9.0%	2.2%
		Dec-22	4.7%	4.7%	0.4%	1.7%	1.7%	6.2%	6.2%	6.2%	6.2%	1.4%
	Tech C	Jul-22	81.2%	81.2%	98.5%	93.3%	93.3%	77.8%	77.8%	77.8%	77.8%	93.2%
		Aug-22	80.6%	80.6%	98.5%	93.4%	93.4%	77.6%	77.6%	77.6%	77.6%	92.7%
		Sep-22	85.8%	85.8%	99.2%	96.6%	96.6%	85.5%	85.5%	85.5%	85.5%	93.9%
		Oct-22	84.4%	84.4%	99.3%	96.7%	96.7%	84.8%	84.8%	84.8%	84.8%	93.0%
		Nov-22	88.4%	88.4%	99.4%	97.4%	97.4%	88.3%	88.3%	88.3%	88.3%	95.1%
		Dec-22	92.4%	92.4%	99.6%	98.3%	98.3%	92.2%	92.2%	92.2%	92.2%	96.9%
Chemical Usage	(Lbs)	Jul-22	3992	3992	99	503	503	650	650	650	650	350
		Aug-22	4745	4745	329	586	586	625	625	625	625	300
		Sep-22	8572	8572	296	922	922	625	625	625	625	200
		Oct-22	2509	2509	329	335	335	275	275	275	275	100
		Nov-22	3115	3115	329	1005	1005	275	275	275	275	50
		Dec-22	2341	2341	395	335	335	225	225	225	225	200

Table 3-20. Emission Factors and Weighting Factors for Fluoride Process Emissions and Monthly Chemical Usage (Excludes HF)

Compound			Chem 21	Chem 22	Chem 23	Chem 24	Chem 25	Chem 26	Chem 27	Chem 28	Chem 29	Chem 30	Chem 31
Emission Factor	Tech A	(lb/lb)	3.86E-05	2.33E-02	5.56E-02	1.33E-02	2.63E-01	1.21E-01	-	5.95E-02	4.12E-02	7.64E-02	3.41E-02
	Tech B		3.86E-05	2.33E-02	4.88E-03	1.33E-02	2.63E-01	7.35E-03	0.00E+00	5.95E-02	4.12E-02	2.75E-02	3.41E-02
	Tech C		6.43E-02	2.29E-02	5.32E-05	1.85E-02	4.01E-02	2.10E-03	0.00E+00	4.67E-02	2.54E-02	6.39E-03	1.49E-01
Weighting Factor (%)	Tech A	Jul-22	1.1%	1.1%	2.9%	2.9%	2.9%	1.3%	1.3%	1.3%	1.3%	0.9%	0.9%
		Aug-22	1.8%	1.8%	4.4%	4.4%	4.4%	2.1%	2.1%	2.1%	2.1%	1.4%	1.4%
		Sep-22	3.3%	3.3%	8.3%	8.3%	8.3%	4.3%	4.3%	4.3%	4.3%	2.7%	2.7%
		Oct-22	4.3%	4.3%	10.8%	10.8%	10.8%	5.7%	5.7%	5.7%	5.7%	3.5%	3.5%
		Nov-22	2.8%	2.8%	7.1%	7.1%	7.1%	3.8%	3.8%	3.8%	3.8%	2.3%	2.3%
		Dec-22	1.6%	1.6%	4.3%	4.3%	4.3%	2.3%	2.3%	2.3%	2.3%	1.3%	1.3%
	Tech B	Jul-22	5.7%	5.7%	13.0%	13.0%	13.0%	26.0%	26.0%	26.0%	26.0%	11.0%	11.0%
		Aug-22	5.5%	5.5%	12.6%	12.6%	12.6%	25.5%	25.5%	25.5%	25.5%	10.8%	10.8%
		Sep-22	2.8%	2.8%	6.4%	6.4%	6.4%	14.2%	14.2%	14.2%	14.2%	5.6%	5.6%
		Oct-22	2.7%	2.7%	6.1%	6.1%	6.1%	13.7%	13.7%	13.7%	13.7%	5.4%	5.4%
		Nov-22	2.2%	2.2%	5.1%	5.1%	5.1%	11.3%	11.3%	11.3%	11.3%	4.4%	4.4%
		Dec-22	1.4%	1.4%	3.5%	3.5%	3.5%	7.8%	7.8%	7.8%	7.8%	2.9%	2.9%
	Tech C	Jul-22	93.2%	93.2%	84.1%	84.1%	84.1%	72.7%	72.7%	72.7%	72.7%	88.1%	88.1%
		Aug-22	92.7%	92.7%	83.0%	83.0%	83.0%	72.5%	72.5%	72.5%	72.5%	87.8%	87.8%
		Sep-22	93.9%	93.9%	85.3%	85.3%	85.3%	81.5%	81.5%	81.5%	81.5%	91.7%	91.7%
		Oct-22	93.0%	93.0%	83.1%	83.1%	83.1%	80.6%	80.6%	80.6%	80.6%	91.1%	91.1%
		Nov-22	95.1%	95.1%	87.8%	87.8%	87.8%	84.9%	84.9%	84.9%	84.9%	93.4%	93.4%
		Dec-22	96.9%	96.9%	92.2%	92.2%	92.2%	89.9%	89.9%	89.9%	89.9%	95.7%	95.7%
Chemical Usage	(Lbs)	Jul-22	350	350	108	108	108	2400	2400	2400	2400	9877	9877
		Aug-22	300	300	192	192	192	3360	3360	3360	3360	9877	9877
		Sep-22	200	200	144	144	144	5412	5412	5412	5412	8466	8466
		Oct-22	100	100	156	156	156	2160	2160	2160	2160	6349	6349
		Nov-22	50	50	108	108	108	2560	2560	2560	2560	11993	11993
		Dec-22	200	200	108	108	108	1760	1760	1760	1760	7055	7055

Table 3-20. Emission Factors and Weighting Factors for Fluoride Process Emissions and Monthly Chemical Usage (Excludes HF)

Compound			Chem 32	Chem 33	Chem 34	Chem 35	Chem 36	Chem 37	Chem 38	Chem 39	Chem 40	Chem 41	Chem 42
Emission Factor	Tech A	(lb/lb)	5.46E-02	-	2.47E-01	-	1.62E-02	-	1.00E+00	-	5.94E-03	-	1.27E-02
	Tech B		5.46E-02	-	2.47E-01	0.00E+00	1.62E-02	0.00E+00	1.00E+00	2.47E-06	1.50E-03	0.00E+00	1.27E-02
	Tech C		3.44E-02	8.41E-01	2.47E-01	1.90E-04	1.62E-02	8.64E-01	1.94E-03	2.47E-06	3.19E-03	4.33E-04	1.31E-02
Weighting Factor (%)	Tech A	Jul-22	0.9%	0.0%	4.4%	0.0%	4.4%	0.0%	0.0%	0.9%	2.6%	2.6%	2.6%
		Aug-22	1.4%	0.0%	6.7%	0.0%	6.7%	0.1%	0.1%	1.4%	4.0%	4.0%	4.0%
		Sep-22	2.7%	0.0%	13.0%	0.0%	13.0%	0.1%	0.1%	2.9%	7.7%	7.7%	7.7%
		Oct-22	3.5%	0.0%	16.7%	0.0%	16.7%	0.1%	0.1%	3.8%	10.1%	10.1%	10.1%
		Nov-22	2.3%	0.0%	11.4%	0.0%	11.4%	0.1%	0.1%	2.5%	6.7%	6.7%	6.7%
		Dec-22	1.3%	0.0%	7.1%	0.0%	7.1%	0.1%	0.1%	1.5%	4.0%	4.0%	4.0%
	Tech B	Jul-22	11.0%	0.0%	22.6%	36.4%	22.6%	0.2%	0.2%	18.9%	18.3%	18.3%	18.3%
		Aug-22	10.8%	0.0%	21.7%	36.0%	21.7%	0.2%	0.2%	18.5%	17.7%	17.7%	17.7%
		Sep-22	5.6%	0.0%	11.4%	21.8%	11.4%	0.1%	0.1%	10.0%	9.3%	9.3%	9.3%
		Oct-22	5.4%	0.0%	10.7%	21.4%	10.7%	0.1%	0.1%	9.7%	8.9%	8.9%	8.9%
		Nov-22	4.4%	0.0%	9.2%	17.6%	9.2%	0.1%	0.1%	7.9%	7.4%	7.4%	7.4%
		Dec-22	2.9%	0.0%	6.5%	12.3%	6.5%	0.0%	0.0%	5.4%	5.1%	5.1%	5.1%
	Tech C	Jul-22	88.1%	100.0%	73.0%	63.6%	73.0%	99.8%	99.8%	80.2%	79.2%	79.2%	79.2%
		Aug-22	87.8%	100.0%	71.6%	64.0%	71.6%	99.8%	99.8%	80.0%	78.3%	78.3%	78.3%
		Sep-22	91.7%	100.0%	75.6%	78.2%	75.6%	99.8%	99.8%	87.1%	83.0%	83.0%	83.0%
		Oct-22	91.1%	100.0%	72.6%	78.6%	72.6%	99.8%	99.8%	86.5%	81.1%	81.1%	81.1%
		Nov-22	93.4%	100.0%	79.4%	82.4%	79.4%	99.8%	99.8%	89.6%	85.9%	85.9%	85.9%
		Dec-22	95.7%	100.0%	86.4%	87.7%	86.4%	99.9%	99.9%	93.2%	90.8%	90.8%	90.8%
Chemical Usage	(Lbs)	Jul-22	9877	4	0	104621	0	3	3	1139	26400	26400	26400
		Aug-22	9877	3	0	169147	0	375	375	1526	35200	35200	35200
		Sep-22	8466	4	0	661	0	276	276	1594	17600	17600	17600
		Oct-22	6349	2	87	127360	87	103	103	1025	8800	8800	8800
		Nov-22	11993	1	0	4601	0	171	171	1252	26400	26400	26400
		Dec-22	7055	2	0	446	0	162	162	455	17600	17600	17600

Table 3-20. Emission Factors and Weighting Factors for Fluoride Process Emissions and Monthly Chemical Usage (Excludes HF)

Compound			Chem 43	Chem 44	Chem 45	Chem 46	Chem 47	Chem 48	Chem 49	Chem 50	Chem 51	Chem 52	Chem 53
Emission Factor	Tech A	(lb/lb)	5.45E-03	-	-	-	7.53E-01	1.22E-03	1.22E-03	3.00E-05	3.00E-05	-	-
	Tech B		5.45E-03	3.48E-05	3.48E-05	0.00E+00	7.53E-01	1.22E-03	1.22E-03	3.00E-05	3.00E-05	1.70E-03	1.70E-03
	Tech C		3.04E-03	1.31E-05	1.31E-05	3.33E-03	3.07E-02	1.22E-03	1.22E-03	3.00E-05	3.00E-05	1.68E-03	1.68E-03
Weighting Factor (%)	Tech A	Jul-22	2.6%	2.6%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Aug-22	4.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Sep-22	7.7%	7.7%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Oct-22	10.1%	10.1%	10.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Nov-22	6.7%	6.7%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Dec-22	4.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Tech B	Jul-22	18.3%	18.3%	18.3%	9.4%	9.4%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		Aug-22	17.7%	17.7%	17.7%	9.2%	9.2%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		Sep-22	9.3%	9.3%	9.3%	4.8%	4.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		Oct-22	8.9%	8.9%	8.9%	4.7%	4.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		Nov-22	7.4%	7.4%	7.4%	3.7%	3.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		Dec-22	5.1%	5.1%	5.1%	2.5%	2.5%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Tech C	Jul-22	79.2%	79.2%	79.2%	90.6%	90.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Aug-22	78.3%	78.3%	78.3%	90.8%	90.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Sep-22	83.0%	83.0%	83.0%	95.2%	95.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Oct-22	81.1%	81.1%	81.1%	95.3%	95.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Nov-22	85.9%	85.9%	85.9%	96.3%	96.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Dec-22	90.8%	90.8%	90.8%	97.5%	97.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Chemical Usage	(Lbs)	Jul-22	26400	26400	26400	0	0	3250	3250	3250	3250	3250	3250
		Aug-22	35200	35200	35200	0	0	3250	3250	3250	3250	3250	3250
		Sep-22	17600	17600	17600	55	55	2936	2936	2936	2936	2936	2936
		Oct-22	8800	8800	8800	54	54	2141	2141	2141	2141	2141	2141
		Nov-22	26400	26400	26400	54	54	1040	1040	1040	1040	1040	1040
		Dec-22	17600	17600	17600	0	0	1430	1430	1430	1430	1430	1430

Table 3-20. Emission Factors and Weighting Factors for Fluoride Process Emissions and Monthly Chemical Usage (Excludes HF)

Compound			Chem 54
Emission Factor	Tech A	(lb/lb)	-
	Tech B		0.00E+00
	Tech C		0.00E+00
Weighting Factor (%)	Tech A	Jul-22	8.8%
		Aug-22	13.1%
		Sep-22	22.9%
		Oct-22	28.4%
		Nov-22	20.1%
		Dec-22	12.8%
	Tech B	Jul-22	11.9%
		Aug-22	11.2%
		Sep-22	5.2%
		Oct-22	4.8%
		Nov-22	4.2%
		Dec-22	3.1%
	Tech C	Jul-22	79.3%
		Aug-22	75.7%
		Sep-22	71.9%
		Oct-22	66.9%
		Nov-22	75.7%
		Dec-22	84.1%
Chemical Usage	(Lbs)	Jul-22	0
		Aug-22	4409
		Sep-22	0
		Oct-22	0
		Nov-22	4365
		Dec-22	0

Section L. Monitoring System for Fab Emission Units (Uncontrolled Evaporative Processes): VOC Emissions (from tanks)

Table 3-21. Tank Throughput Data

Tank ID	Tank Throughput (Gallons)					
	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
F12-OCC1-TK-266-1-83	10,800,000	1,339,200	1,296,000	1,339,200	1,296,000	1,339,200
F12-TK-266-1-00	5,832,000	6,026,400	5,832,000	6,026,400	5,832,000	6,026,400
F12-TK-266-1-15	10,800,000	11,160,000	10,800,000	11,160,000	10,800,000	11,160,000
F12-TK-266-1-60	5,832,000	6,026,400	5,832,000	6,026,400	5,832,000	6,026,400
F12-TK-266-1-75	2,592,000	2,678,400	2,592,000	2,678,400	2,592,000	2,678,400
F12-TK-266-1-90	5,832,000	6,026,400	5,832,000	6,026,400	5,832,000	6,026,400
F12-TK-266-2-00	5,832,000	6,026,400	5,832,000	6,026,400	5,832,000	6,026,400
F12-TK-266-2-15	10,800,000	11,160,000	10,800,000	11,160,000	10,800,000	11,160,000
F12-TK-266-2-60	5,832,000	6,026,400	5,832,000	6,026,400	5,832,000	6,026,400
F12-TK-266-2-75	2,592,000	2,678,400	2,592,000	2,678,400	2,592,000	2,678,400
F12-TK-76-GH1-1	23,924	18,440	17,450	17,097	12,728	7,657
F12-TK-76-GH1-2	23,924	18,440	17,450	17,097	12,728	7,657
F12-TK-76-GH4-1	23,924	18,440	17,450	17,097	12,728	7,657
F12-TK-76-GH4-2	23,924	18,440	17,450	17,097	12,728	7,657
F12-TK-76-GH6-1	115,990	42,679	40,728	33,241	29,048	19,288
F12-TK-79-GH10-1	57,995	42,679	40,728	33,241	29,048	19,288
F12-TK-79-GH10-2	57,995	42,679	40,728	33,241	29,048	19,288
F12-TK-79-GH10-3	115,990	42,679	40,728	33,241	29,048	19,288
F12-TK-79-GH1-1	635	0	385	277	0	761
F12-TK-79-GH1-2	635	0	385	277	0	761
F12-TK-79-GH4-1	635	0	385	277	0	761
F12-TK-79-GH4-2	635	0	385	277	0	761
F12-TK-79-GH7-1	57,995	42,679	40,728	33,241	29,048	19,288
F12-TK-79-GH7-2	57,995	42,679	40,728	33,241	29,048	19,288
F12-TK-80-GH1-1	636	0	675	0	0	0
F12-TK-80-GH1-2	0	0	0	0	292	315
F22-OCB2A-TK-269-1-00	47,849	18,440	17,450	17,097	12,728	7,657
F22-OCB2A-TK-269-1-30	47,849	18,440	17,450	17,097	12,728	7,657
F22-OCB2A-TK-270-1-00	115,990	42,679	40,728	33,241	29,048	19,288
F22-OCB2-TK-293-1-00	1,616,181	921,910	732,607	528,984	479,650	517,244
F22-OCB2-TK-293-2-00	1,616,181	921,910	732,607	528,984	479,650	517,244
F22-OCF2-TK-270-1-30	0	42,679	40,728	33,241	29,048	19,288
F22-PWB2-TK-293-0-92	458,957	473,921	371,412	273,420	242,827	271,835
F22-PWB2-TK-293-1-15	426,980	448,326	354,419	271,634	231,984	257,662
F22-PWB2-TK-293-2-15	426,980	448,326	354,419	271,634	231,984	257,662
F22-PWB2-TK-293-3-15	426,980	448,326	354,419	271,634	231,984	257,662
F22-TK-251-1-200	356	545	226	392	174	168
F22-TK-296-1-05	0	0	1,627	920	0	1,213
F22-TK-296-1-15	0	0	1,627	920	0	1,213
F22-TK-296-2-05	0	0	4,229	2,391	0	3,153
F32-OC11-TK-266-1-00	6,480,000	6,696,000	6,480,000	6,696,000	6,480,000	6,696,000
F32-OC11-TK-266-2-00	6,480,000	6,696,000	6,480,000	6,696,000	6,480,000	6,696,000
F32-OC11-TK-266-3-00	0	6,696,000	6,480,000	6,696,000	6,480,000	6,696,000
F32-OC9-TK-266-1-15	10,800,000	11,160,000	10,800,000	11,160,000	10,800,000	11,160,000
F32-OC9-TK-266-1-60	4,320,000	4,464,000	4,320,000	4,464,000	4,320,000	4,464,000
F32-OC9-TK-266-1-75	2,592,000	2,678,400	2,592,000	2,678,400	2,592,000	2,678,400
F32-OC9-TK-266-1-90	4,320,000	4,464,000	4,320,000	4,464,000	4,320,000	4,464,000
F32-OC9-TK-266-2-15	10,800,000	11,160,000	10,800,000	11,160,000	10,800,000	11,160,000
F32-OC9-TK-266-2-60	4,320,000	4,464,000	4,320,000	4,464,000	4,320,000	4,464,000
F32-OC9-TK-266-2-75	2,592,000	2,678,400	2,592,000	2,678,400	2,592,000	2,678,400

Table 3-21. Tank Throughput Data (continued)

Tank ID	Tank Throughput (Gallons)					
	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
F32-OC9-TK-266-3-15	10,800,000	11,160,000	10,800,000	11,160,000	10,800,000	11,160,000
F32-OC9-TK-266-4-15	10,800,000	11,160,000	10,800,000	11,160,000	10,800,000	11,160,000
F32-OCB2B-TK-269-1-00	47,849	18,440	17,450	17,097	12,728	7,657
F32-OCB2B-TK-270-1-00	115,990	42,679	40,728	33,241	29,048	19,288
F32-OCB2B-TK-286-1-50	1,270	0	385	277	0	761
F32-PWB2B-TK-293-0-92	458,957	473,921	371,412	273,420	242,827	271,835
F32-PWB2-TK-266-1-15	0	11,160,000	10,800,000	11,160,000	10,800,000	11,160,000
F32-PWB2-TK-266-1-60	4,320,000	4,464,000	4,320,000	4,464,000	4,320,000	4,464,000
F32-PWB2-TK-266-1-75	2,592,000	2,678,400	2,592,000	2,678,400	2,592,000	2,678,400
F32-PWB2-TK-266-1-90	4,320,000	4,464,000	4,320,000	4,464,000	4,320,000	4,464,000
F32-PWB2-TK-266-2-15	0	11,160,000	10,800,000	11,160,000	10,800,000	11,160,000
F32-PWB2-TK-266-2-60	4,320,000	4,464,000	4,320,000	4,464,000	4,320,000	4,464,000
F32-PWB2-TK-266-2-75	2,592,000	2,678,400	2,592,000	2,678,400	2,592,000	2,678,400
F42-FB1A-TK-266-1-00	5,400,000	5,580,000	5,400,000	5,580,000	5,400,000	5,580,000
F42-FB1A-TK-266-2-00	5,400,000	5,580,000	5,400,000	5,580,000	5,400,000	5,580,000
F42-FB1A-TK-269-1-00	15,950	18,440	17,450	17,097	12,728	7,657
F42-FB1A-TK-269-1-30	15,950	18,440	17,450	17,097	12,728	7,657
F42-FB1A-TK-269-2-00	15,950	18,440	17,450	17,097	12,728	7,657
F42-FB1A-TK-270-1-00	0	42,679	40,728	33,241	29,048	19,288
F42-FB1A-TK-270-2-00	0	42,679	40,728	33,241	29,048	19,288
F42-FB1A-TK-86-1-50	1,270	0	385	277	0	761
F42-FB1B-TK-266-1-00	5,400,000	5,580,000	5,400,000	5,580,000	5,400,000	5,580,000
F42-FB1B-TK-266-2-00	5,400,000	5,580,000	5,400,000	5,580,000	5,400,000	5,580,000
F42-PB1A-TK-251-1-00	329	1,213	613	1,434	987	967
F42-PB1A-TK-266-1-15	5,400,000	11,160,000	10,800,000	11,160,000	10,800,000	11,160,000
F42-PB1A-TK-266-1-60	5,400,000	5,580,000	5,400,000	5,580,000	5,400,000	5,580,000
F42-PB1A-TK-266-1-75	5,400,000	2,678,400	2,592,000	2,678,400	2,592,000	2,678,400
F42-PB1A-TK-266-1-83	1,296,000	1,339,200	1,296,000	1,339,200	1,296,000	1,339,200
F42-PB1A-TK-266-1-90	0	4,464,000	4,320,000	4,464,000	4,320,000	4,464,000
F42-PB1A-TK-266-2-15	5,400,000	11,160,000	10,800,000	11,160,000	10,800,000	11,160,000
F42-PB1A-TK-266-2-60	5,400,000	4,464,000	4,320,000	4,464,000	4,320,000	4,464,000
F42-PB1A-TK-266-2-75	5,400,000	2,678,400	2,592,000	2,678,400	2,592,000	2,678,400
F42-PB1A-TK-293-0-92	604,666	619,380	390,830	303,998	297,562	379,390
F42-PB1A-TK-293-1-00	452,879	531,819	378,579	266,501	240,538	296,396
F42-PB1A-TK-293-1-15	531,814	536,573	375,797	265,608	235,008	297,749
F42-PB1A-TK-293-2-00	452,879	531,819	378,579	266,501	240,538	296,396
F42-PB1A-TK-293-2-15	531,814	536,573	375,797	265,608	235,008	297,749
F42-PB1B-TK-266-1-15	5,400,000	11,160,000	10,800,000	11,160,000	10,800,000	11,160,000
F42-PB1B-TK-266-1-60	5,400,000	4,464,000	4,320,000	4,464,000	4,320,000	4,464,000
F42-PB1B-TK-266-1-75	5,400,000	2,678,400	2,592,000	2,678,400	2,592,000	2,678,400
F42-PB1B-TK-266-1-83	1,296,000	1,339,200	1,296,000	1,339,200	1,296,000	1,339,200
F42-PB1B-TK-266-1-90	0	4,464,000	4,320,000	4,464,000	4,320,000	4,464,000
F42-PB1B-TK-266-2-15	5,400,000	11,160,000	10,800,000	11,160,000	10,800,000	11,160,000
F42-PB1B-TK-266-2-60	5,400,000	4,464,000	4,320,000	4,464,000	4,320,000	4,464,000
F42-PB1B-TK-266-2-75	5,400,000	2,678,400	2,592,000	2,678,400	2,592,000	2,678,400
F42-WTR1-TK-932-1-01	41,480	42,461	36,070	42,351	33,321	37,432

Section M. Monitoring System for Fab Emission Units (Uncontrolled Evaporative Processes): VOC Emissions (from wipers, sinks, and bottles)

Table 3-22. Solvent Usage for Wipers, Sinks, and Bottles

Evaporative Process Emission Source	Solvent Usage (lb)					
	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
Bottles	344.98	184.52	209.65	157.24	80.83	54.62
Sinks	668.55	727.61	593.48	549.21	134.88	133.50
Wipers [1]	2644.44	1675.08	1894.53	1477.60	1525.15	4017.28

Notes:

1 - Wiper purchase data missing for December 2022; therefore, the highest purchase total reported in the previous 12 month period is used for calculations per the Appendix B alternative methodology.

Section N and O. Monitoring System for Fab Emission Units (Uncontrolled Evaporative Processes): VOC Emissions from Chemical Delivery Modules (CDM) units

Table 3-23. Emission Factors for Chemical Delivery Modules

Chemical Delivey Module	Emission Factor	Fab-Specific DRE [1]	Chemical Purchase Data (lb)					
	(lb/lb)	%	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
Fab 12								
LNDBA (Gen 3/4/5)	0.000302	99.59%	30,778	23,083	23,083	16,928	18,467	13,850
PGMEA (Gen 3/4/5)	0.005756		8,774	8,774	10,529	10,529	5,265	3,510
POS F42 (Gen 5)	0.000074		0	0	0	0	0	0
POS Trio (Gen 3/4)	0.000062		13,136	0	0	0	0	0
IPA F42 (Gen 5)	0.003753		0	0	0	0	0	0
IPA Trio (Gen 3/4)	0.000499		104,912	110,581	111,699	105,701	65,388	48,881
Fab 32S								
LNDBA (Gen 3/4/5)	0.000302	99.62%	35,395	41,550	33,856	29,239	29,239	20,006
PGMEA (Gen 3/4/5)	0.005756		20,181	14,916	15,794	14,039	10,529	12,284
POS F42 (Gen 5)	0.000074		0	0	0	0	0	0
POS Trio (Gen 3/4)	0.000062		0	0	0	0	0	0
IPA F42 (Gen 5)	0.003753		0	0	0	0	0	0
IPA Trio (Gen 3/4)	0.000499		104,912	110,581	111,699	105,701	65,388	48,881
Fab 32								
LNDBA (Gen 3/4/5)	0.000302	99.57%	0	0	0	0	0	0
PGMEA (Gen 3/4/5)	0.005756		20,181	14,916	15,794	14,039	10,529	12,284
POS F42 (Gen 5)	0.000074		0	0	0	0	0	0
POS Trio (Gen 3/4)	0.000062		0	0	0	0	0	0
IPA F42 (Gen 5)	0.003753		0	0	0	0	0	0
IPA Trio (Gen 3/4)	0.000499		104,912	110,581	111,699	105,701	65,388	48,881
Fab 42								
LNDBA (Gen 3/4/5)	0.000302	99.88%	90,795	90,795	56,939	69,250	63,095	50,783
PGMEA (Gen 3/4/5)	0.005756		63,176	59,666	42,117	35,098	35,098	33,343
POS F42 (Gen 5)	0.000074		599,200	599,040	496,095	492,660	460,760	284,260
POS Trio (Gen 3/4)	0.000062		0	0	0	0	0	0
IPA F42 (Gen 5)	0.003753		104,912	110,581	111,699	105,701	65,388	48,881
IPA Trio (Gen 3/4)	0.000499		0	0	0	0	0	0

Notes:

DRE - destruction removal efficiency

1 - CDM VOC emission calculations began taking the fab-specific DRE's into account after routing to VOC abatement units was complete. Fab-specific DRE's were first used in July, September, July, and August for Fab 12, 32S, 32, and 42 CDMs, respectively.

Section P. Monitoring System for Fugitive Dust Emissions from Vehicular Traffic: PM, PM_{10}, and $PM_{2.5}$

Table 3-24. Emission Factors for Vehicular Traffic

Vehicular Traffic Area	$PM_{2.5}$ Emission Factor	PM_{10} Emission Factor	PM Emission Factor	Vehicle Miles Travelled					
	(lb/vehicle mile travelled)			Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
Industrial Unpaved Roads	0.046	0.46	1.598	2150	2279	2206	2279	2206	2279
Paved Roads and Parking Lot Areas	0.00005	0.00020	0.00099	145502	149139	170970	176669	170970	153511
Paved Roads in Manufacturing Areas	0.00005	0.00020	0.00099	30865	82878	80350	81601	83110	89562

Fab 42 Boiler #1 Excess NOx Emissions

Table 3-25. Fab 42 Boiler #1 Excess NOx Emissions Calculations [1]

	Dec-2022 [2]
F42 Boiler 1 Run Hours	43
Allowable NOx Emission Factor (lb/hr) [3]	0.062
Allowable NOx Emissions (lbs)	2.7
Tested NOx Emission Factor (lb/hr) [4]	0.12
F42 Boiler NOx Emiisions (lbs)	5.2
Excess NOx Emissions (lbs)	2.5

Notes:

1 - Refer to the Fab 42 Boiler 1 Excess Emissions/Deviation Report submitted to MCAQD on 1/18/23 for details

2 - Operational hours from 12/19/22 - 1/31/22

3 - Allowable NOx emission factor, as determined from the permit limit and testing conditions on 1/13/23

4 - NOx emission factor as determined from the failed performance test on 1/12/23