



January 19, 2023

Doug Moody, EHS Manager
Analog Devices, Inc
4200 Pacific Rim Boulevard
Camas, WA 98607

RE: Final Air Discharge Permit for New Acid Scrubber and VOC Emission Limit Increase

Dear Mr. Moody:

A final determination to issue Air Discharge Permit (ADP) 23-3561 has been completed for ADP Application CL-3209 pursuant to Section 400-110(4) of the General Regulations for Air Pollution Sources of the Southwest Clean Air Agency (SWCAA). Public notice for ADP Application CL-3209 was published in the permit section of SWCAA's website on August 18, 2022. SWCAA did not receive a request for a public comment period in response to the public notice and has concluded that significant public interest does not exist for this determination. Therefore, a public comment period will not be provided for this permitting action. Electronic copies of ADP 23-3561 and the associated Technical Support Document are available for public review in the "Recent Air Discharge Permits" section under the "Air Permits" link on SWCAA's website (<http://www.swcleanair.gov>). Original copies are enclosed for your files.

ADP 23-3561 may be appealed directly to the Pollution Control Hearings Board (PCHB) at P.O. Box 40903, Olympia, Washington 98504-0903 within thirty (30) days of receipt as provided in Revised Code of Washington (RCW) 43.21B.

If you have any questions or comments, or desire additional information, please contact me or Danny Phipps at (360) 574-3058, extension 124.

Sincerely,

Uri Papish
Executive Director

UP:edp

Enclosure: Technical Support Document and Air Discharge Permit 23-3561





SWCAA
Southwest Clean Air Agency

**AIR DISCHARGE PERMIT
23-3561**

Issued: January 19, 2023

Analog Devices Inc.
4200 NW Pacific Rim Blvd., Camas, WA 98607

SWCAA ID – 1897



REVIEWED BY: *Clinton H. Lamoreaux*
Clinton Lamoreaux, Chief Engineer

APPROVED BY: *Uri Papish*
Uri Papish, Executive Director

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1. Equipment/Activity Identification

ID No.	Equipment/Activity	Control Equipment
1	Boiler #1 – Bryan (m/n RW1260)	Low NO _x Burner
2	Boiler #2 – Bryan (m/n RW1260)	Low NO _x Burner
3	Boiler #3 – Bryan (m/n RV500-W)	Low NO _x Burner
4	Emergency Generator Engine #1 – Caterpillar (m/n 3412), 749 bhp	Ultra-low Sulfur Fuel and Hours Limitation
5	Emergency Generator Engine #2 – Caterpillar (m/n 3456 ATAAC), 765 bhp	Ultra-low Sulfur Fuel and Hours Limitation
6	Wet Mask Process Area, Wet Bench Cleaning, Diffusion Area, and Thin Film Area	Acid Scrubber SC-1 – Harrington (m/n ECH-915-5LB)
7	Wet Mask Process Area, Wet Bench Cleaning, Diffusion Area, and Thin Film Area	Acid Scrubber SC-2 – Harrington (m/n ECH 10 15-5LB)
8	Wet Bench Cleaning	Ammonia Scrubber SC-3 – Harrington (m/n ECH3)
9	Wet Bench Cleaning	Ammonia Scrubber SC-4 – Harrington (m/n ECH 34-5LB)
10	Wet Mask Process Area, Wet Bench Cleaning, Diffusion Area, and Thin Film Area	Acid Scrubber SC-5 – Verantis (m/n HRP-129-132)
11	EPI Deposition Furnace #W-515	EPI Scrubber SC-A – Airgard
12	EPI Deposition Furnace #W-513	EPI Scrubber SC-B – Airgard
13	EPI Deposition Furnace #W-514	EPI Scrubber SC-C – Airgard
14	EPI Deposition Furnace #W-1003	EPI Scrubber SC-D – CET or Airgard
15	EPI Deposition Furnace #W-1005	EPI Scrubber SC-E – CET or Airgard
16	EPI Deposition Furnace #W-1008	EPI Scrubber SC-F – CET or Airgard
17	EPI Deposition Furnace #W-1012	EPI Scrubber SC-G – Airgard
18	EPI Deposition Furnace #W-1016	EPI Scrubber SC-H – Airgard
19	EPI Deposition Furnace #W-1026	EPI Scrubber SC-I – Airgard
20	EPI Deposition Furnace #W-1027	EPI Scrubber SC-J – Airgard
21	Wet Bench Cleaning and Dry Mask Area, Phase I	None
22	Wet Bench Cleaning and Dry Mask Area, Phase II	None
23	Wet Bench Cleaning and Dry Mask Support Areas	None

2. Permit Requirements

The following tables detail the specific requirements of this Air Discharge Permit (ADP). In addition to the requirements listed below, equipment at this facility may be subject to other federal, state, and local regulations. The requirement number is identified in the left-hand column. The text of the ADP requirement is contained in the middle column. The emission unit, equipment, or activity to which the requirement applies is listed in the right-hand column.

ADP 23-3561 supersedes ADP 21-3492 in its entirety.

Emission Limits

Req. No.	Emission Limits	Equipment/ Activity ID No.																					
1.	<p>Combined emissions from the facility must not exceed any of the following:</p> <table border="1" data-bbox="329 751 1198 1066"> <thead> <tr> <th>Pollutant</th> <th>Emission Limit</th> </tr> </thead> <tbody> <tr> <td>Nitrogen Oxides</td> <td>6.70 tpy</td> </tr> <tr> <td>Carbon Monoxide</td> <td>5.10 tpy</td> </tr> <tr> <td>Volatile Organic Compounds</td> <td>59.00 tpy</td> </tr> <tr> <td>Sulfur Dioxide</td> <td>0.081 tpy</td> </tr> <tr> <td>Particulate Matter, PM₁₀, total</td> <td>1.20 tpy</td> </tr> <tr> <td>Particulate Matter, PM_{2.5}, total</td> <td>1.20 tpy</td> </tr> </tbody> </table> <p>The long-term emission limits are 12-month rolling sums calculated consistent with Section 6 of the Technical Support Document for this ADP.</p>	Pollutant	Emission Limit	Nitrogen Oxides	6.70 tpy	Carbon Monoxide	5.10 tpy	Volatile Organic Compounds	59.00 tpy	Sulfur Dioxide	0.081 tpy	Particulate Matter, PM ₁₀ , total	1.20 tpy	Particulate Matter, PM _{2.5} , total	1.20 tpy	Facility-wide							
Pollutant	Emission Limit																						
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Particulate Matter, PM ₁₀ , total	1.20 tpy																						
Particulate Matter, PM _{2.5} , total	1.20 tpy																						
2.	<p>Emissions from Boiler #1 must not exceed any of the following:</p> <table border="1" data-bbox="329 1266 1198 1581"> <thead> <tr> <th>Pollutant</th> <th colspan="2">Emission Limits</th> </tr> </thead> <tbody> <tr> <td>Nitrogen Oxides</td> <td>1.70 tpy</td> <td>25 ppmvd</td> </tr> <tr> <td>Carbon Monoxide</td> <td>2.05 tpy</td> <td>50 ppmvd</td> </tr> <tr> <td>Volatile Organic Compounds</td> <td>0.30 tpy</td> <td>—</td> </tr> <tr> <td>Sulfur Dioxide</td> <td>0.033 tpy</td> <td>—</td> </tr> <tr> <td>Particulate Matter, PM₁₀, total</td> <td>0.45 tpy</td> <td>—</td> </tr> <tr> <td>Particulate Matter, PM_{2.5}, total</td> <td>0.45 tpy</td> <td>—</td> </tr> </tbody> </table> <p>The long-term emission limits are 12-month rolling sums calculated consistent with Section 6 of the Technical Support Document for the ADP. The short-term emission limits are determined as a 1-hour average, corrected to 3% O₂.</p>	Pollutant	Emission Limits		Nitrogen Oxides	1.70 tpy	25 ppmvd	Carbon Monoxide	2.05 tpy	50 ppmvd	Volatile Organic Compounds	0.30 tpy	—	Sulfur Dioxide	0.033 tpy	—	Particulate Matter, PM ₁₀ , total	0.45 tpy	—	Particulate Matter, PM _{2.5} , total	0.45 tpy	—	1
Pollutant	Emission Limits																						
Nitrogen Oxides	1.70 tpy	25 ppmvd																					
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Req. No.	Emission Limits	Equipment/ Activity ID No.																					
3.	<p>Emissions from Boiler #2 must not exceed any of the following:</p> <table border="1" data-bbox="329 359 1198 669"> <thead> <tr> <th>Pollutant</th> <th colspan="2">Emission Limits</th> </tr> </thead> <tbody> <tr> <td>Nitrogen Oxides</td> <td>1.70 tpy</td> <td>25 ppmvd</td> </tr> <tr> <td>Carbon Monoxide</td> <td>2.05 tpy</td> <td>50 ppmvd</td> </tr> <tr> <td>Volatile Organic Compounds</td> <td>0.30 tpy</td> <td>—</td> </tr> <tr> <td>Sulfur Dioxide</td> <td>0.033 tpy</td> <td>—</td> </tr> <tr> <td>Particulate Matter, PM₁₀, total</td> <td>0.45 tpy</td> <td>—</td> </tr> <tr> <td>Particulate Matter, PM_{2.5}, total</td> <td>0.45 tpy</td> <td>—</td> </tr> </tbody> </table> <p>The long-term emission limits are 12-month rolling sums calculated consistent with Section 6 of the Technical Support Document for the ADP. The short-term emission limits are determined as a 1-hour average, corrected to 3% O₂.</p>	Pollutant	Emission Limits		Nitrogen Oxides	1.70 tpy	25 ppmvd	Carbon Monoxide	2.05 tpy	50 ppmvd	Volatile Organic Compounds	0.30 tpy	—	Sulfur Dioxide	0.033 tpy	—	Particulate Matter, PM ₁₀ , total	0.45 tpy	—	Particulate Matter, PM _{2.5} , total	0.45 tpy	—	2
Pollutant	Emission Limits																						
Nitrogen Oxides	1.70 tpy	25 ppmvd																					
Carbon Monoxide	2.05 tpy	50 ppmvd																					
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Particulate Matter, PM ₁₀ , total	0.45 tpy	—																					
Particulate Matter, PM _{2.5} , total	0.45 tpy	—																					
4.	<p>Emissions from Boiler #3 must not exceed any of the following:</p> <table border="1" data-bbox="329 940 1198 1218"> <thead> <tr> <th>Pollutant</th> <th colspan="2">Emission Limits</th> </tr> </thead> <tbody> <tr> <td>Nitrogen Oxides</td> <td>0.80 tpy</td> <td>30 ppmvd</td> </tr> <tr> <td>Carbon Monoxide</td> <td>0.85 tpy</td> <td>50 ppmvd</td> </tr> <tr> <td>Volatile Organic Compounds</td> <td>0.15 tpy</td> <td>—</td> </tr> <tr> <td>Sulfur Dioxide</td> <td>0.013 tpy</td> <td>—</td> </tr> <tr> <td>Particulate Matter, PM₁₀, total</td> <td>0.20 tpy</td> <td>—</td> </tr> <tr> <td>Particulate Matter, PM_{2.5}, total</td> <td>0.20 tpy</td> <td>—</td> </tr> </tbody> </table> <p>The long-term emission limits are 12-month rolling sums calculated consistent with Section 6 of the Technical Support Document for the ADP. The short-term emission limits are determined as a 1-hour average, corrected to 3% O₂.</p>	Pollutant	Emission Limits		Nitrogen Oxides	0.80 tpy	30 ppmvd	Carbon Monoxide	0.85 tpy	50 ppmvd	Volatile Organic Compounds	0.15 tpy	—	Sulfur Dioxide	0.013 tpy	—	Particulate Matter, PM ₁₀ , total	0.20 tpy	—	Particulate Matter, PM _{2.5} , total	0.20 tpy	—	3
Pollutant	Emission Limits																						
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Particulate Matter, PM ₁₀ , total	0.20 tpy	—																					
Particulate Matter, PM _{2.5} , total	0.20 tpy	—																					
5.	<p>Combined emissions from Acid Scrubbers SC-1, SC-2, and SC-5 must not exceed any of the following:</p> <table border="1" data-bbox="436 1491 1133 1675"> <thead> <tr> <th>Pollutant</th> <th>Emission Limit</th> </tr> </thead> <tbody> <tr> <td>hydrogen chloride [7647-01-0]</td> <td>4.86 tpy</td> </tr> <tr> <td>hydrogen fluoride [7664-39-3]</td> <td>3.98 tpy</td> </tr> <tr> <td>chlorine [7782-50-5]</td> <td>1.89 tpy</td> </tr> </tbody> </table> <p>The long-term emission limits are 12-month rolling sums calculated consistent with Section 6 of the Technical Support Document for the ADP.</p>	Pollutant	Emission Limit	hydrogen chloride [7647-01-0]	4.86 tpy	hydrogen fluoride [7664-39-3]	3.98 tpy	chlorine [7782-50-5]	1.89 tpy	6,7,10													
Pollutant	Emission Limit																						
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Req. No.	Emission Limits	Equipment/ Activity ID No.								
6.	<p>Individual emissions from Acid Scrubbers SC-1, SC-2, and SC-5 must not exceed any of the following:</p> <table border="1" data-bbox="440 390 1133 569"> <thead> <tr> <th>Pollutant</th> <th>Emission Limit</th> </tr> </thead> <tbody> <tr> <td>hydrogen chloride [7647-01-0]</td> <td>1.1 ppmvd</td> </tr> <tr> <td>hydrogen fluoride [7664-39-3]</td> <td>2.5 ppmvd</td> </tr> <tr> <td>chlorine [7782-50-5]</td> <td>0.33 ppmvd</td> </tr> </tbody> </table> <p>The short-term emission limits are determined as a 1-hour average for each scrubber, uncorrected for O₂.</p>	Pollutant	Emission Limit	hydrogen chloride [7647-01-0]	1.1 ppmvd	hydrogen fluoride [7664-39-3]	2.5 ppmvd	chlorine [7782-50-5]	0.33 ppmvd	6,7,10
Pollutant	Emission Limit									
hydrogen chloride [7647-01-0]	1.1 ppmvd									
hydrogen fluoride [7664-39-3]	2.5 ppmvd									
chlorine [7782-50-5]	0.33 ppmvd									
7.	<p>Emissions from Ammonia Scrubber SC-3 must not exceed any of the following:</p> <table border="1" data-bbox="329 772 1198 852"> <thead> <tr> <th>Pollutant</th> <th colspan="2">Emission Limits</th> </tr> </thead> <tbody> <tr> <td>ammonia [7664-41-7]</td> <td>0.175 tpy</td> <td>3.0 ppmvd</td> </tr> </tbody> </table> <p>The long-term emission limits are 12-month rolling sums calculated consistent with Section 6 of the Technical Support Document for the ADP. The short-term emission limits are determined as a 1-hour average, uncorrected for O₂.</p>	Pollutant	Emission Limits		ammonia [7664-41-7]	0.175 tpy	3.0 ppmvd	8		
Pollutant	Emission Limits									
ammonia [7664-41-7]	0.175 tpy	3.0 ppmvd								
8.	<p>Emissions from Ammonia Scrubber SC-4 must not exceed any of the following:</p> <table border="1" data-bbox="329 1087 1198 1167"> <thead> <tr> <th>Pollutant</th> <th colspan="2">Emission Limits</th> </tr> </thead> <tbody> <tr> <td>ammonia [7664-41-7]</td> <td>0.175 tpy</td> <td>3.0 ppmvd</td> </tr> </tbody> </table> <p>The long-term emission limits are 12-month rolling sums calculated consistent with Section 6 of the Technical Support Document for the ADP. The short-term emission limits are determined as a 1-hour average, uncorrected for O₂.</p>	Pollutant	Emission Limits		ammonia [7664-41-7]	0.175 tpy	3.0 ppmvd	9		
Pollutant	Emission Limits									
ammonia [7664-41-7]	0.175 tpy	3.0 ppmvd								
9.	<p>Emissions from the EPI scrubbers, each, must not exceed any of the following:</p> <table border="1" data-bbox="329 1411 1198 1491"> <thead> <tr> <th>Pollutant</th> <th colspan="2">Emission Limits</th> </tr> </thead> <tbody> <tr> <td>hydrogen chloride [7647-01-0]</td> <td>0.0020 tpy</td> <td>2.5 ppmvd</td> </tr> </tbody> </table> <p>The long-term emission limits are 12-month rolling sums calculated consistent with Section 6 of the Technical Support Document for the ADP. The short-term emission limits are determined as a 1-hour average, uncorrected for O₂.</p>	Pollutant	Emission Limits		hydrogen chloride [7647-01-0]	0.0020 tpy	2.5 ppmvd	11-20		
Pollutant	Emission Limits									
hydrogen chloride [7647-01-0]	0.0020 tpy	2.5 ppmvd								

Req. No.	Emission Limits	Equipment/ Activity ID No.				
10.	<p>Emissions from the Dry Mask Areas (Phases I and II) and Support Areas (Line Maintenance, QA, and Background) through Solvent Exhausts EXF-7, EXF-8, or EXF-9, combined, must not exceed the following:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Pollutant</th> <th>Emission Limits</th> </tr> </thead> <tbody> <tr> <td>Volatile organic compounds</td> <td>58.0 tpy</td> </tr> </tbody> </table> <p>The long-term emission limits are 12-month rolling sums calculated consistent with Section 6 of the Technical Support Document for the ADP.</p>	Pollutant	Emission Limits	Volatile organic compounds	58.0 tpy	20, 21, and 22
Pollutant	Emission Limits					
Volatile organic compounds	58.0 tpy					
11.	Visible emissions from any Boiler, Scrubber, or Dry Mask (solvent) Exhaust must not exceed zero percent (0%) opacity for more than three (3) minutes in any 1-hour period as determined by a Certified Observer in accordance with SWCAA Method 9.	1, 2, 3, and 6–22				
12.	Visible emissions from the Emergency Generator Diesel Engines must not exceed five percent opacity for more than 3 minutes in any one-hour period as determined in accordance with SWCAA Method 9 (See Appendix A of SWCAA 400) except during startup. For the purposes of this requirement, the startup period ends when the earlier of the following operating events occurs: <ul style="list-style-type: none"> (a) The engine has reached normal operating temperature; or (b) The engine has been operating for 15 minutes. 	4 and 5				
13.	Except for chlorine, hydrogen fluoride, hydrogen chloride, phosphorous oxychloride, silane, and 1,4-dioxane emissions of toxic air pollutants and hazardous air pollutants must not exceed the more stringent of the following: <ul style="list-style-type: none"> (a) The respective Small Quantity Emission Rate listed in WAC 173-460, unless it can be demonstrated that the emissions are below the respective Acceptable Source Impact Level listed in WAC 173-460; or (b) 10.0 tpy as a 12-month rolling total summed monthly for toxic air pollutants that are also listed hazardous air pollutants. 	Facility-wide				

Operating Limits and Requirements

Req. No.	Operating Limits and Requirements	Equipment/ Activity ID No.
14.	Reasonable precautions must be taken at all times to prevent and minimize fugitive emissions from facility operations.	Facility-wide
15.	Recognized good practice and procedures must be used to reduce these odors to a reasonable minimum.	Facility-wide
16.	Each pollution control device must be operated whenever the processing equipment served by that air pollution control device is in operation. Control devices must be operated and maintained in accordance with the manufacturer's specifications. Furthermore, air pollution control devices must be operated in a manner that minimizes emissions.	1, 2, 3, and 6–20

Req. No.	Operating Limits and Requirements	Equipment/ Activity ID No.
17.	Emission units identified in this ADP must be maintained and operated in total and continuous conformity with the conditions identified in this ADP. SWCAA reserves the right to take any and all appropriate action to maintain the conditions of this ADP, including directing the facility to cease operations until corrective action can be completed.	1-19
18.	Boiler #1, Boiler #2, and Boiler #3 must only be fired on natural gas.	1, 2, and 3
19.	The Emergency Generator Engines must only be fired on fuel oil with a maximum sulfur content of 15 ppmw. Any fuel other than ultra-low sulfur fuel oil must be approved by SWCAA in writing prior to use.	4 and 5
20.	Each Emergency Generator Engine must be equipped with a non-resettable hour meter to record hours of operation.	4 and 5
21.	Operation of the Emergency Generator Engines for maintenance checks and readiness testing must not exceed 200 hours per year, each. Emergency operation of the emergency engines is not limited.	4 and 5
22.	During periods of normal operation, the operating parameters of Acid Scrubber SC-1, must be maintained at the following: (a) A water recirculation rate of 540 gal/min or greater, as a rolling 15-minute average; and (b) A scrubber liquor makeup flow rate of 17.5 gal/min or greater, as a 15-minute average or a scrubber liquor pH of 5.0 or greater, as a 15-minute average.	6
23.	During periods of normal operation, the operating parameters of Acid Scrubber SC-2 must be maintained at the following: (a) A water recirculation rate of 750 gal/min or greater, as a rolling 15-minute average; and (b) A scrubber liquor makeup flow rate of 22.5 gal/min or greater, as a 15-minute average or a scrubber liquor pH of 5.0 or greater, as a 15-minute average.	7
24.	During periods of normal operation, Ammonia Scrubber SC-3 must be maintained at the following: (a) A water recirculation rate of 30 gal/min or greater, as a rolling 15-minute average; and (b) A scrubber liquor makeup flow rate of 1.0 gal/min or greater, as a 15-minute average or a scrubber liquor pH of 4.0 or less, as a 15-minute average.	8
25.	During periods of normal operation, SC-4, must be maintained at the following: (a) A water recirculation rate of 60 gal/min or greater, as a rolling 15-minute average; and (b) A scrubber liquor makeup flow rate of 2.0 gal/min or greater, as a 15-minute average or a scrubber liquor pH of 4.0 or less, as a 15-minute average.	9

Req. No.	Operating Limits and Requirements	Equipment/ Activity ID No.
26.	During periods of normal operation, the operating parameters of Acid Scrubber SC-5 must be maintained at the following: (a) A water recirculation rate of 430 gal/min or greater, as a rolling 15-minute average; and (b) A scrubber liquor makeup flow rate of 15 gal/min or greater, as a 15-minute average or a scrubber liquor pH of 5.0 or greater, as a 15-minute average.	10
27.	During periods of normal operation, each EPI Scrubber must maintain the following: (a) A water recirculation rate of: (1) 26 gal/min or greater for each CET scrubber, as a rolling 15-minute average; (2) 17 gal/min or greater for each Airgard scrubber, as a rolling 15-minute average; or (3) 17 gal/min or greater for another replacement scrubber, as a rolling 15-minute average; and (b) A water makeup flow rate 1.5 gal/min or greater, as a rolling 15-minute average.	11-20
28.	Exhausts for Boiler #1, Boiler #2, Boiler #3, all Acid Scrubbers, all Ammonia Scrubbers, all EPI Scrubbers, and Solvent Exhausts EXF-7, EXF-8, and EXF-9 must be discharged vertically at the minimum height of 47 feet above ground level.	1, 2, 3, and 6-23
29.	Except for the EPI Scrubbers, all exhausts must be discharged vertically into the ambient air above the level of the building roof. Any device that obstructs or prevents vertical discharge is prohibited.	1-10, 21, 22, and 23

Monitoring and Recordkeeping Requirements

Req. No.	Monitoring and Recordkeeping Requirements	Equipment/ Activity ID No.
30.	With the exception of data logged by a computerized data acquisition system, each record required by this ADP must include the date and the name of the person making the record entry. If a control device or process is not operating during a specific period, a record must be made to that effect.	1-23
31.	All records required by this ADP must be kept for a minimum period of no less than three (3) years and must be maintained in a form readily available for inspection by SWCAA representatives.	1-23
32.	Excess emissions and upset conditions must be recorded for each occurrence.	Facility-wide
33.	For each product used or produced at the facility that contains VOC, HAP, or TAP, the Permittee must maintain purchase receipts for quantities, Safety Data Sheet information, and Technical Data Sheets in a readily accessible form.	6-23

Req. No.	Monitoring and Recordkeeping Requirements	Equipment/ Activity ID No.
34.	<p>The following must be monitored and recorded as follows:</p> <ul style="list-style-type: none"> (a) Any upset condition or excess emission that may result in the emission of air pollutants must be recorded for each occurrence; (b) Natural gas consumption of each Boiler must be recorded monthly; (c) Hours of operation of each Emergency Generator Engine must be recorded monthly; (d) The recirculation flow rate, makeup flow rate, pH, and pressure drop across Acid Scrubbers SC-1, SC-2, and SC-5 each, must be recorded continuously; (e) The recirculation flow rate, makeup flow rate, pH, and pressure drop across the Ammonia Scrubbers SC-3 and SC-4, each, must be recorded continuously; and (f) The recirculation flow rate and makeup flow rate for each EPI Scrubber must be recorded continuously. 	1-23
35.	<p>At least once per calendar month, a brief qualitative observation for the purpose of identifying the presence of visible emissions from emission units subject to an opacity limit must be performed during daylight hours while the unit is under normal operation (i.e., not in startup, shut down, or upset). If no visible emissions are observed, then a record of the observations must be made, and no further action is necessary.</p>	Facility-wide
36.	<p>If any visible emissions are observed during a qualitative observation of emission units, then the Permittee must:</p> <ul style="list-style-type: none"> (a) Take corrective action until no visible emissions are observed; or (b) Quantify visible emissions using SWCAA Method 9 or another method approved, in advance by SWCAA. <p>All observations and corrective actions taken must be recorded. If visible emissions cannot be reduced to zero or be verified to comply with the visible emissions limit within one (1) business day of discovery, then the Permittee must report the excess emissions, make a record, and take corrective actions until the unit can be demonstrated to comply with the limit.</p>	Facility-wide

Emission Monitoring and Testing Requirements

Req. No.	Emission Monitoring and Testing Requirements	Equipment/ Activity ID No.
37.	<p>Emission testing for Boiler #1 and Boiler #2 must be conducted no later than February 2025. Subsequent tests must be conducted every five (5) years thereafter. Testing conducted more than three (3) months prior to the due date does not fulfill the testing requirement unless approved in advance by SWCAA. Tests must be performed in accordance with Appendix A.</p>	1 and 2

Req. No.	Emission Monitoring and Testing Requirements	Equipment/ Activity ID No.
38.	In each calendar year during which no source test is required, emission monitoring of Boiler #1 and Boiler #2 must be conducted no later than February 28. Monitoring conducted more than three (3) months prior to the due date does not fulfill the monitoring requirement unless approved in advance by SWCAA. Monitoring must be performed in accordance with Appendix B.	1 and 2
39.	Emission monitoring of Boiler #3 must be conducted each calendar year no later than February 28. Monitoring conducted more than three (3) months prior to the due date does not fulfill the monitoring requirement unless approved in advance by SWCAA. Monitoring must be performed in accordance with Appendix B.	3
40.	<p>Emission testing for the Acid Scrubbers must be conducted no later than the following:</p> <ul style="list-style-type: none"> (a) Acid Scrubber SC-1: September 30, 2023; (b) Acid Scrubber SC-2: September 30, 2023; and (c) Acid Scrubber SC-5: Test within ninety (90) days of initial operation, no later than September 30, 2023. Future testing must be performed according to the same testing schedule as Acid Scrubbers SC-1 and SC-2. <p>Subsequent tests must be conducted every five (5) years thereafter. Testing conducted more than three (3) months prior to the due date does not fulfill the testing requirement unless approved in advance by SWCAA. Tests must be performed in accordance with Appendix C.</p>	6, 7 and 10
41.	<p>Emission testing for the Ammonia Scrubbers must be conducted no later than the following:</p> <ul style="list-style-type: none"> (a) Ammonia Scrubber SC-3: September 30, 2023; and (b) Ammonia Scrubber SC-4: Test within ninety (90) days of initial operation, no later than September 30, 2023. Future testing must be performed according to the same testing schedule as Ammonia Scrubber SC-3. <p>Subsequent tests must be conducted every five (5) years thereafter. Testing conducted more than three (3) months prior to the due date does not fulfill the testing requirement unless approved in advance by SWCAA. Tests must be performed in accordance with Appendix D.</p>	8 and 9

Req. No.	Emission Monitoring and Testing Requirements	Equipment/ Activity ID No.
42.	<p>Emission testing of the EPI scrubbers must be emission tested no later than the following:</p> <ul style="list-style-type: none"> (a) EPI Scrubber SC-A: September 30, 2033; (b) EPI Scrubber SC-B: September 30, 2033; (c) EPI Scrubber SC-C: September 30, 2033; (d) EPI Scrubber SC-D: September 30, 2027; (e) EPI Scrubber SC-E: September 30, 2027; (f) EPI Scrubber SC-F: September 30, 2027; (g) EPI Scrubber SC-G: September 30, 2033; (h) EPI Scrubber SC-H: September 30, 2027; (i) EPI Scrubber SC-I: September 30, 2027; and (j) EPI Scrubber SC-J: Test within ninety (90) days of initial operation, then test no later than September 30, 2027. <p>Subsequent tests must be conducted every twelve (12) years thereafter. Testing conducted more than three (3) months prior to the due date does not fulfill the testing requirement unless approved in advance by SWCAA. Tests must be performed in accordance with Appendix E.</p>	11–20
43.	<p>Emission testing of the solvent exhausts, EXF-7, EXF-8, and EXF-9, must be conducted no later than the following:</p> <ul style="list-style-type: none"> (a) Solvent Exhaust EXF-7: September 30, 2023; (b) Solvent Exhaust EXF-8: September 30, 2023; (c) Solvent Exhaust EXF-9: September 30, 2023; <p>Subsequent tests must be conducted every five (5) years thereafter. Testing conducted more than three (3) months prior to the due date does not fulfill the testing requirement unless approved in advance by SWCAA. Tests must be performed in accordance with Appendix F.</p>	21, 22, and 23

Reporting Requirements

Req. No.	Reporting Requirements	Equipment/ Activity ID No.
44.	<p>SWCAA must be notified of upset conditions as soon as possible, but no later than five (5) business days after discovery. SWCAA may be notified by electronic mail, fax, or telephone message.</p>	Facility-wide
45.	<p>Excess emissions must be reported to SWCAA as follows:</p> <ul style="list-style-type: none"> (a) As soon as possible, but no later than twelve (12) hours after discovery for emissions that represent a potential threat to human health or safety; (b) As soon as possible, but no later than forty-eight (48) hours after discovery for emissions which the Permittee wishes to claim as unavoidable pursuant to SWCAA 400-107(1); and (c) No later than thirty (30) days after the end of the month of discovery for all other excess emissions. 	Facility-wide

Req. No.	Reporting Requirements	Equipment/ Activity ID No.
46.	All air quality related complaints received by the Permittee must be reported to SWCAA within three (3) calendar days of receipt. Complaint reports must include the date and time of the complaint, the name and contact information (if available) for the complainant, the nature of the complaint, and any actions taken by the Permittee to address the complaint.	Facility-wide
47.	<p>An annual emissions inventory report must be submitted to SWCAA for the previous calendar year in accordance with SWCAA 400-105(1). Each report must contain, at a minimum, the following information:</p> <ul style="list-style-type: none"> (a) The annual sum of emissions of NO_x, CO, VOC, PM₁₀, PM_{2.5}, SO₂, TAPs, and HAPs; (b) The annual hours of operation of the facility; (c) The amount of natural gas burned in the Boilers; and (d) The hours of operation of the Emergency Generator Engines. <p>The emissions inventory report is due no later than March 15 of the calendar year following the reporting year.</p>	1-23
48.	<p>A written report must be submitted to SWCAA at least seven (7) business days prior to the use of any new product used in manufacturing or production that contains a VOC, TAP, or HAP. The report must contain the following:</p> <ul style="list-style-type: none"> (a) A description of the proposed change(s) in materials with a Safety Data Sheet (SDS) and Technical Data Sheet (TDS), if available, for each new product; (b) The date by which the Permittee intends to begin use of the product; (c) The amount (gallons or lb) expected to be used; (d) A quantification of the change in VOC, TAP and HAP emissions from the use of the product; and (e) A summary of any applicable requirement that would be affected by the use of the product. <p>If the new product would cause any emission limit in this ADP to be exceeded, the Permittee must submit an ADP Application to SWCAA to request a revision to this ADP. In this case, the Permittee is prohibited from using the new product until a revised ADP is issued.</p>	6-23

Req. No.	Reporting Requirements	Equipment/ Activity ID No.
49.	<p>If an EPI scrubber is intended to be replaced, a written report must be submitted to SWCAA at least thirty (30) days prior to the intended installation date. The report must contain, at minimum, the following:</p> <p>(a) The intended date of installation;</p> <p>(b) The make, model, serial number and facility designation of the scrubber;</p> <p>(c) Documentation demonstrating that the scrubber will meet the following minimum requirements:</p> <p>(1) A minimum control efficiency of 99.99% for acid gases, such as hydrogen fluoride and hydrogen chloride;</p> <p>(2) A minimum scrubber liquor flow rate of 17 gal/min;</p> <p>(3) A minimum makeup flow rate of 1.5 gal/min; and</p> <p>(4) Be equipped with a flow meter for scrubber liquor flow.</p> <p>The scrubber must not be installed until approved by SWCAA in writing. If the scrubber cannot meet the minimum requirements above, an ADP application must be filed and a revised ADP must be issued prior to installation of the new scrubber.</p>	11–20
50.	Emission monitoring results must be reported to SWCAA in writing within fifteen (15) days of completion.	1, 2, and 3
51.	The results of all emission testing required by this Permit must be reported to SWCAA in writing within forty-five (45) days of test completion.	1, 2, 3, and 6–23
52.	Within ten (10) business days of initiating normal operation of Ammonia Scrubber SC-5, the Permittee must notify SWCAA that the unit is operating.	10
53.	The permittee must submit a BACT analysis for VOC controls to SWCAA by December 31, 2023. If SWCAA determines that VOC controls meet the criteria of BACT, SWCAA will notify the permittee. Upon notification that VOC controls are required, the permittee must submit a permit application by a date specified by SWCAA.	Facility-wide

3. General Provisions

Req. No.	General Provisions
A.	For the purpose of ensuring compliance with this ADP, duly authorized SWCAA representatives must be permitted access to the Permittee's premises and the facilities being constructed, owned, operated and/or maintained by the Permittee for the purpose of inspecting said facilities. These inspections are required to determine the status of compliance with this ADP and applicable regulations and to perform or require such tests as may be deemed necessary.
B.	The provisions, terms and conditions of this ADP are deemed to bind the Permittee, its officers, directors, agents, servants, employees, successors and assigns, and all persons, firms, and corporations acting under or for the Permittee.
C.	The requirements of this ADP survive any transfer of ownership of the source or any portion thereof.

Req. No.	General Provisions
D.	This ADP must be posted conspicuously at or be readily available near the source.
E.	This ADP will be invalidated, in whole or in part, if construction or installation of any new or modified equipment has not commenced within eighteen (18) months from date of issuance, if construction is discontinued for a period of eighteen (18) months or more, or if construction is not completed within a reasonable time.
F.	This ADP does not supersede requirements of other agencies with jurisdiction and further, this ADP does not relieve the Permittee of any requirements of any other governmental agency. In addition to this ADP, the Permittee may be required to obtain permits or approvals from other agencies with jurisdiction.
G.	Compliance with the terms of this ADP does not relieve the Permittee from the responsibility of compliance with SWCAA General Regulations for Air Pollution Sources, previously issued Regulatory Orders, RCW 70A.15, Title 173 WAC or any other applicable emission control requirements, nor from the resulting liabilities and/or legal remedies for failure to comply.
H.	If any provision of this ADP is held to be invalid, all unaffected provisions of the ADP remain in effect and are enforceable.
I.	No change in this ADP will be made or be effective except as may be specifically set forth by written order of the Southwest Clean Air Agency upon written application by the Permittee for the relief sought.
J.	The Southwest Clean Air Agency may, in accordance with RCW 70A.15, impose such conditions as are reasonably necessary to assure the maintenance of compliance with the terms of this ADP, the Washington Clean Air Act, and the applicable rules and regulations adopted under the Washington Clean Air Act.

Appendix A
Air Quality Testing Requirements
Boilers #1 and #2

1. Background

The purpose of this testing is to quantify emissions from Boilers #1 and #2 and to provide an adequate assurance of compliance with the terms and conditions of the ADP.

2. Test Constituents and Test Methods

- (a) Sample ports, traverse points, volumetric flow rate, gas velocity, and temperature using EPA Methods 1 and 2;
- (b) O₂ and CO₂ using EPA Methods 3 or 3A;
- (c) Moisture content of stack gas using EPA Method 4 or Oregon Department of Environmental Quality (ODEQ) Method 4;
- (d) Carbon monoxide (CO) using EPA Method 10;
- (e) Nitrogen oxides (NO_x) using EPA Method 7E; and
- (f) Visible emissions (opacity) using SWCAA Method 9.

3. Test Plan and Notification

A comprehensive test plan must be submitted to SWCAA for review and approval a minimum of ten (10) business days prior to the proposed test date. SWCAA must be notified a minimum of three (3) calendar days prior to the proposed test date so that a SWCAA representative may be present during testing.

4. Test Requirements

- (a) Test Dates.
 - (1) Boiler #1 test must be conducted no later than February 28, 2025; and
 - (2) Boiler #2 test must be conducted no later than February 28, 2025.Subsequent tests must be conducted every five (5) years thereafter. Testing conducted more than three (3) months prior to the due date does not fulfill the testing requirement unless approved in advance by SWCAA.
- (b) Test Duration. Tests must include a minimum of three (3) test runs, each at least one (1) hour in duration, and be performed at normal maximum throughput or process operating conditions.
- (c) Test Location. The Permittee must provide the necessary platform and sampling ports for testing personnel to perform a test of the systems. Testing must be performed on the exhaust of each Boiler at a location that meets the requirements of EPA Methods 1 and 2.
- (d) Source Operations. Source operations during the emissions test must be representative of the maximum intended level of normal operation. Inability to achieve maximum intended level of normal operation must be preapproved by SWCAA in advance of performing the test.
- (e) Test Records. A complete record of production related parameters, including process startups and shutdowns, control equipment startups and shutdowns, and any adjustments made during testing must be kept during emissions testing to correlate operations with emissions and must be recorded in the test results final report. Include a summary of production related parameters, which may include fuel type, operating temperature, process throughput, or other parameters unique to the operation of the unit being tested.

Appendix A
Air Quality Testing Requirements
Boilers #1 and #2

5. Reporting Requirements

Unless otherwise directed by SWCAA, a final test report must be prepared and submitted (hard copy and electronic) to SWCAA within forty-five (45) calendar days of test completion and, at a minimum, must contain the following information:

- (a) A brief description of the purpose of the test, for example, an initial test, a periodic test required by an ADP, a test required by a federal, state, or local rule or regulation, or a test required to determine compliance with a Notice to Correct;
- (b) Description of the unit being tested, including manufacturer, model number, serial number, design capacity, and maximum intended level of operation;
- (c) The location and description of the discharge point (stack, port, etc.), including the dimensions (diameter, length and width, or other) and height above ground level. A photo of the discharge point is highly recommended;
- (d) The location of the sample ports or test location and a description of how the sampling location relates to the discharge point. For example, the sampling location may be in a square duct some distance away from the discharge point, which is a round stack. A photo of the sample ports or test location is highly recommended;
- (e) Time and date of the test and identification and qualifications of the personnel involved;
- (f) Summary of results, reported in units and averaging periods consistent with the application emissions standard or unit;
- (g) Test results must be reported in:
 - (1) ppmv, corrected to 0% moisture and 3% O₂; and
 - (2) pound per hour (lb/hr).
- (h) Summary of air pollution control systems or equipment operating conditions during the test;
- (i) Summary of production related parameters, which may include fuel type, operating temperature, process throughput, pressure or pressure drop, pH, recirculation rates, or other parameters unique to the operation of the unit being tested;
- (j) A description of the test methods or procedures used, including all field data, quality assurance/quality control procedures and documentation;
- (k) A description of the analytical procedures used, including all laboratory data, quality assurance/quality control procedures and documentation;
- (l) Copies of field data and example calculations;
- (m) Chain of custody information;
- (n) Calibration documentation;
- (o) Discussion of any abnormalities associated with the results; and
- (p) A statement signed by the senior management official of the testing firm certifying the validity of the source test report. Reports with material mistakes or misinformation may be rejected by SWCAA.

Appendix A
Air Quality Testing Requirements
Boilers #1 and #2

6. Changes to Testing Requirements

The source test must be conducted as specified in the sections above. Minor modifications to the requirements above or to the testing schedule may be requested by the Permittee or their representative, in writing, to SWCAA. Upon review of the request and in accordance with EPA delegation, SWCAA will inform the Permittee, in writing, of any approved modifications.

Appendix B
Performance Monitoring Requirements
Boilers #1, #2, and #3

1. Background

The purpose of emission monitoring ("tuning") is to determine proper operation of Boilers #1, #2, and #3 and to adjust as necessary to minimize emissions and provide a reasonable assurance that the boilers are operating properly.

2. Test Constituents and Monitoring Methods

- (a) Oxygen (O₂) using a calibrated portable combustion analyzer or EPA Methods 3 or 3A;
- (b) Nitrogen oxides (NO_x) using a calibrated portable combustion analyzer or EPA Method 7E; and
- (c) Carbon monoxide (CO) using a calibrated portable combustion analyzer or EPA Method 10.

Calibrated combustion analyzers include electrochemical cell combustion analyzers, analyzers used for reference method testing, or other analyzers pre-approved by SWCAA. Sampling and analysis must be performed via calibrated combustion analyzer unless an alternative test method or testing schedule is requested by the Permittee, in writing, to SWCAA. Upon review of the request, SWCAA must inform the Permittee, in writing, of the determination.

3. Emission Monitoring Requirements

- (a) Dates. Emission monitoring must be conducted each calendar year no later than February 28 on the primary fuel, unless the unit is not in use during that year, or a reference method source testing was conducted on that unit during that year. A primary fuel is the fuel that was burned in the largest quantity (in therm or MMBtu) in the previous twelve (12) months. Monitoring conducted more than three (3) months prior to the due date does not fulfill the monitoring requirement unless approved in advance by SWCAA.
- (b) Location and Source Operation. The Permittee must provide the necessary platform and sampling ports for emission monitoring personnel to perform monitoring of an emission unit.
 - (1) The outlet of the exhaust stack after control equipment must be tested for all constituents listed in 2 above.
 - (2) Unit operation during the emissions test must be representative of intended operating conditions.
- (c) Data Collection.
 - (1) Sampling must consist of at least one (1) test consisting of at least five (5) minutes of data collection following a "ramp-up phase." The ramp-up phase ends when analyzer readings have stabilized (less than 5% per minute change in emission concentration). Emission concentrations must be recorded at least once every thirty (30) seconds during the data collection phase. All test data collected following the ramp-up phase must be reported to SWCAA.
 - (2) The analyzer(s) response to span (calibration) gas of a known concentration (reference) must be determined before and after monitoring. No more than twelve (12) hours may elapse between response checks. The results are invalid if the analyzer zero or span drift exceeds 10% of the span value. Monitoring may not be

Appendix B
Performance Monitoring Requirements
Boilers #1, #2, and #3

started until the calibration error (the difference between the reference concentration and the analyzer response) is no more than 10% of the span value.

- (3) The CO and NO_x span gas concentrations must be no less than 50% and no more than 200% of the emission concentration corresponding to the permitted emission limit. A lower concentration span gas may be used if it is more representative of measured concentrations. Ambient air may be used to zero the CO and NO_x cells/analyzer(s) and span the oxygen cell/analyzer.
- (4) If the monitoring results from any monitoring event indicate that emission concentrations exceed the permitted emission limits for the unit, the Permittee must either perform sixty (60) minutes of additional monitoring to quantify CO and NO_x emissions more accurately or initiate corrective action. Additional monitoring or corrective action must be initiated as soon as practical but no later than three (3) days after the exceedance is identified. Corrective action includes tuning, maintenance by service personnel, limitation of unit load, or other action taken to maintain compliance with permitted limits. Monitoring of unit emissions must be conducted within three (3) days following completion of any corrective action to confirm that the corrective action has been effective. Initiation of corrective action does not shield the Permittee from enforcement.

4. Reporting Requirements

Monitoring results must be reported to SWCAA within fifteen (15) calendar days of completion. Compliance must be determined by comparing the average of the results of each evaluation run with the requirements of the ADP. Results must be submitted on forms provided by SWCAA or in an alternative format previously approved by SWCAA. The report must include the following information:

- (a) A description of the emission unit including manufacturer, model number and facility designation;
- (b) Time and date of the emissions evaluation;
- (c) Identification of the personnel involved;
- (d) A summary of collected data, calculations, and final results, reported in units consistent with the applicable emission standard or limit.
- (e) Final test result concentrations must be corrected to 3% O₂ and adjusted to reflect analyzer response to zero and span gases
- (f) A summary of control system or equipment operating conditions;
- (g) A description of the evaluation methods or procedures used, including all field data, quality assurance/quality control procedures and documentation; and
- (h) Calibration error checks documentation.

A spreadsheet version of the SWCAA Combustion Equipment Monitoring Data Sheet is available at <http://www.swcleanair.gov>.

Appendix B
Performance Monitoring Requirements
Boilers #1, #2, and #3

5. Changes to Testing Requirements

Monitoring must be conducted as specified in the sections above. Minor modifications to the requirements above or to the schedule may be requested by the Permittee or their representative, in writing, to SWCAA. Upon review of the request and in accordance with EPA delegation, SWCAA will inform the Permittee, in writing, of any approved modifications.

Appendix C

Air Quality Testing Requirements

Acid Scrubbers

1. Background

The purpose of this testing is to quantify emissions from the Acid Scrubbers and to provide an adequate assurance of compliance with the terms and conditions of the ADP.

2. Test Constituents and Test Methods

- (a) Sample ports, traverse points, volumetric flow rate, gas velocity, and temperature using EPA Methods 1 and 2;
- (b) Moisture content of stack gas using EPA Method 4 or Oregon Department of Environmental Quality (ODEQ) Method 4;
- (c) Hydrogen fluoride [7664-39-3] using EPA Method 26A;
- (d) Hydrogen chloride [7647-01-0] using EPA Method 26A;
- (e) Chlorine [7782-50-5] using EPA Method 26A;
- (f) Ammonia [7664-41-7] using Bay Area AQMD Method ST-1B; and
- (g) Visible Emissions using SWCAA Method 9.

3. Test Plan and Notification

A comprehensive test plan must be submitted to SWCAA for review and approval a minimum of ten (10) business days prior to the proposed test date. SWCAA must be notified a minimum of three (3) calendar days prior to the proposed test date so that a SWCAA representative may be present during testing.

4. Test Requirements

- (a) Test Dates.
 - (1) Acid Scrubber SC-1 test must be conducted no later than September 30, 2023.
 - (2) Acid Scrubber SC-2 test must be conducted no later than September 30, 2023.
 - (3) Acid Scrubber SC-5 must be tested within ninety (90) days of initial operation, no later than September 30, 2023. Future testing must be performed according to the same testing schedule as Acid Scrubbers SC-1 and SC-2.

Subsequent tests must be conducted every five (5) years thereafter. Testing conducted more than three (3) months prior to the due date does not fulfill the testing requirement unless approved in advance by SWCAA.
- (b) Test Duration.
 - (1) With the exception of visible emissions, tests must include a minimum of three (3) test runs, each at least two (2) hours in duration, and be performed at normal maximum throughput or process operating conditions.
 - (2) The visible emissions test must include a minimum of three (3) test runs, each for a block of six (6) consecutive minutes (eighteen minutes total for the test). If no visible emissions are observed (0% opacity) for a 6-minute block, no further observations are required for the run. If any observation is above the limit in any 6-minute block, then for each observation above the limit, the unit must be observed for another 6-minute block, up to a total of ten (10) blocks or one (1) hour for each run.
- (c) Test Location. The Permittee must provide the necessary platform and sampling ports for testing personnel to perform a test of the systems. Testing must be performed at the

Appendix C

Air Quality Testing Requirements

Acid Scrubbers

exhaust of each scrubber at a location that meets the requirements of EPA Methods 1 and 2.

- (d) Source Operations. Source operations during the emissions test must be representative of the maximum intended level of normal operation. Inability to achieve maximum intended level of normal operation must be preapproved by SWCAA in advance of performing the test.
- (e) Test Records. A complete record of production related parameters, including process startups and shutdowns, control equipment startups and shutdowns, and any adjustments made during testing must be kept during emissions testing to correlate operations with emissions and must be recorded in the test results final report. Include a summary of production related parameters, which may include process throughput, pressure or pressure drop, pH, recirculation rates, or other parameters unique to the operation of the unit being tested.

5. Reporting Requirements

Unless otherwise directed by SWCAA, a final test report must be prepared and submitted (hard copy and electronic) to SWCAA within forty-five (45) calendar days of test completion and, at a minimum, must contain the following information:

- (a) A brief description of the purpose of the test, for example, an initial test, a periodic test required by an ADP, a test required by a federal, state, or local rule or regulation, or a test required to determine compliance with a Notice to Correct;
- (b) Description of the unit being tested, including manufacturer, model number, serial number, design capacity, and maximum intended level of operation;
- (c) The location and description of the discharge point (stack, port, etc.), including the dimensions (diameter, length and width, or other) and height above ground level. A photo of the discharge point is highly recommended;
- (d) The location of the sample ports or test location and a description of how the sampling location relates to the discharge point. For example, the sampling location may be in a square duct some distance away from the discharge point, which is a round stack. A photo of the sample ports or test location is highly recommended;
- (e) Time and date of the test and identification and qualifications of the personnel involved;
- (f) Summary of results, reported in units and averaging periods consistent with the application emissions standard or unit;
- (g) Test results must be reported in:
 - (1) ppmv, corrected to 0% moisture and uncorrected for O₂; and
 - (2) pound per hour (lb/hr).
- (h) Summary of air pollution control systems or equipment operating conditions during the test;
- (i) Summary of production related parameters, which may include fuel type, operating temperature, process throughput (such as cm² of chip or mask layers processed), mass balance of chemicals being used and controlled by the tested unit, pressure or pressure drop, pH, recirculation rates, or other parameters unique to the operation of the unit being tested;
- (j) A description of the test methods or procedures used, including all field data, quality assurance/quality control procedures and documentation;

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Air Quality Testing Requirements
Acid Scrubbers

- (k) A description of the analytical procedures used, including all laboratory data, quality assurance/quality control procedures and documentation;
- (l) Copies of field data and example calculations;
- (m) Chain of custody information;
- (n) Calibration documentation;
- (o) Discussion of any abnormalities associated with the results; and
- (p) A statement signed by the senior management official of the testing firm certifying the validity of the source test report. Reports with material mistakes or misinformation may be rejected by SWCAA.

6. Changes to Testing Requirements

The source test must be conducted as specified in the sections above. Minor modifications to the requirements above or to the testing schedule may be requested by the Permittee or their representative, in writing, to SWCAA. Upon review of the request and in accordance with EPA delegation, SWCAA will inform the Permittee, in writing, of any approved modifications.

Appendix D

Air Quality Testing Requirements

Ammonia Scrubbers

1. Background

The purpose of this testing is to quantify emissions from the Ammonia Scrubbers and to provide an adequate assurance of compliance with the terms and conditions of the ADP.

2. Test Constituents and Test Methods

- (a) Sample ports, traverse points, volumetric flow rate, gas velocity, and temperature using EPA Methods 1 and 2;
- (b) Moisture content of stack gas using EPA Method 4 or Oregon Department of Environmental Quality (ODEQ) Method 4;
- (c) Ammonia using Bay Area AQMD Method ST-1B;
- (d) Hydrogen fluoride [7664-39-3] using EPA Method 26A;
- (e) Hydrogen chloride [7647-01-0] using EPA Method 26A;
- (f) Chlorine [7782-50-5] using EPA Method 26A; and
- (g) Visible Emissions using SWCAA Method 9.

3. Test Plan and Notification

A comprehensive test plan must be submitted to SWCAA for review and approval a minimum of ten (10) business days prior to the proposed test date. SWCAA must be notified a minimum of three (3) calendar days prior to the proposed test date so that a SWCAA representative may be present during testing.

4. Test Requirements

- (a) Test Dates.
 - (1) Ammonia Scrubber SC-3 test must be conducted no later than September 30, 2023; and
 - (2) Ammonia Scrubber SC-4 initial test must be conducted within ninety (90) days of initial operation, no later than September 30, 2023. Future testing must be performed according to the same testing schedule as Ammonia Scrubber SC-3.
Subsequent tests must be conducted every five (5) years thereafter. Testing conducted more than three (3) months prior to the due date does not fulfill the testing requirement unless approved in advance by SWCAA.
- (b) Test Duration. Tests must include a minimum of three (3) test runs, each at least two (2) hours in duration, and be performed at normal maximum throughput or process operating conditions.
- (c) Test Location. The Permittee must provide the necessary platform and sampling ports for testing personnel to perform a test of the systems. Testing must be performed at the exhaust of each Scrubber at a location that meets the requirements of EPA Methods 1 and 2.
- (d) Source Operations. Source operations during the emissions test must be representative of the maximum intended level of normal operation. Inability to achieve maximum intended level of normal operation must be preapproved by SWCAA in advance of performing the test.
- (e) Test Records. A complete record of production related parameters, including process startups and shutdowns, control equipment startups and shutdowns, and any adjustments

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Air Quality Testing Requirements

Ammonia Scrubbers

made during testing must be kept during emissions testing to correlate operations with emissions and must be recorded in the test results final report. Include a summary of production related parameters, which may include process throughput, pressure or pressure drop, pH, recirculation rates, or other parameters unique to the operation of the unit being tested.

5. Reporting Requirements

Unless otherwise directed by SWCAA, a final test report must be prepared and submitted (hard copy and electronic) to SWCAA within forty-five (45) calendar days of test completion and, at a minimum, must contain the following information:

- (a) A brief description of the purpose of the test, for example, an initial test, a periodic test required by an ADP, a test required by a federal, state, or local rule or regulation, or a test required to determine compliance with a Notice to Correct;
- (b) Description of the unit being tested, including manufacturer, model number, serial number, design capacity, and maximum intended level of operation;
- (c) The location and description of the discharge point (stack, port, etc.), including the dimensions (diameter, length and width, or other) and height above ground level. A photo of the discharge point is highly recommended;
- (d) The location of the sample ports or test location and a description of how the sampling location relates to the discharge point. For example, the sampling location may be in a square duct some distance away from the discharge point, which is a round stack. A photo of the sample ports or test location is highly recommended;
- (e) Time and date of the test and identification and qualifications of the personnel involved;
- (f) Summary of results, reported in units and averaging periods consistent with the application emissions standard or unit;
- (g) Test results must be reported in:
 - (1) ppmv, corrected to 0% moisture and uncorrected for O₂; and
 - (2) pound per hour (lb/hr).
- (h) Summary of air pollution control systems or equipment operating conditions during the test;
- (i) Summary of production related parameters, which may include fuel type, operating temperature, process throughput (such as cm² of chip or mask layers processed), mass balance of chemicals being used and controlled by the tested unit, pressure or pressure drop, pH, recirculation rates, or other parameters unique to the operation of the unit being tested;
- (j) A description of the test methods or procedures used, including all field data, quality assurance/quality control procedures and documentation;
- (k) A description of the analytical procedures used, including all laboratory data, quality assurance/quality control procedures and documentation;
- (l) Copies of field data and example calculations;
- (m) Chain of custody information;
- (n) Calibration documentation;
- (o) Discussion of any abnormalities associated with the results; and

Appendix D
Air Quality Testing Requirements
Ammonia Scrubbers

- (p) A statement signed by the senior management official of the testing firm certifying the validity of the source test report. Reports with material mistakes or misinformation may be rejected by SWCAA.

6. Changes to Testing Requirements

The source test must be conducted as specified in the sections above. Minor modifications to the requirements above or to the testing schedule may be requested by the Permittee or their representative, in writing, to SWCAA. Upon review of the request and in accordance with EPA delegation, SWCAA will inform the Permittee, in writing, of any approved modifications.

Appendix E

Air Quality Testing Requirements

Epitaxial Scrubbers

1. Background

The purpose of this testing is to quantify emissions from the EPI Scrubbers and to provide an adequate assurance of compliance with the terms and conditions of this ADP.

2. Test Constituents and Test Methods

- (a) Sample ports, traverse points, volumetric flow rate, gas velocity, and temperature using EPA Methods 1 or 1A and 2; and
- (b) Moisture content of stack gas using EPA Method 4 or Oregon Department of Environmental Quality (ODEQ) Method 4; and
- (c) Hydrogen chloride [7647-01-0] using EPA Method 26A.

3. Test Plan and Notification

A comprehensive test plan must be submitted to SWCAA for review and approval a minimum of ten (10) business days prior to the proposed test date. SWCAA must be notified a minimum of three (3) calendar days prior to the proposed test date so that a SWCAA representative may be present during testing.

4. Test Requirements

- (a) Test Dates.
 - (1) EPI Scrubber SC-A test must be conducted no later than September 30, 2033;
 - (2) EPI Scrubber SC-B test must be conducted no later than September 30, 2033;
 - (3) EPI Scrubber SC-C test must be conducted no later than September 30, 2033;
 - (4) EPI Scrubber SC-D test must be conducted no later than September 30, 2027;
 - (5) EPI Scrubber SC-E test must be conducted no later than September 30, 2027;
 - (6) EPI Scrubber SC-F test must be conducted no later than September 30, 2027;
 - (7) EPI Scrubber SC-G test must be conducted no later than September 30, 2033;
 - (8) EPI Scrubber SC-H test must be conducted no later than September 30, 2027;
 - (9) EPI Scrubber SC-I test must be conducted no later than September 30, 2027; and
 - (10) EPI Scrubber SC-J initial test must be conducted within ninety (90) days of initial operation, then tested no later than September 30, 2027.

Subsequent tests must be conducted every twelve (12) years thereafter. Testing conducted more than three (3) months prior to the due date does not fulfill the testing requirement unless approved in advance by SWCAA.

- (b) Test Duration. Tests must include a minimum of three (3) test runs, each at least two (2) hours in duration, and be performed at normal maximum throughput or process operating conditions.
- (c) Test Location. The Permittee must provide the necessary platform and sampling ports for testing personnel to perform a test of the systems. Testing must be performed at the exhaust of each scrubber at a location that meets the requirements of EPA Methods 1 or 1A and 2.
- (d) Source Operations. Source operations during the emissions test must be representative of the maximum intended level of normal operation. Inability to achieve maximum intended level of normal operation must be preapproved by SWCAA in advance of performing the test.

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Air Quality Testing Requirements
Epitaxial Scrubbers

- (e) Test Records. A complete record of production related parameters, including process startups and shutdowns, control equipment startups and shutdowns, and any adjustments made during testing must be kept during emissions testing to correlate operations with emissions and must be recorded in the test results final report. Include a summary of production related parameters, which may include process throughput, pressure or pressure drop, pH, recirculation rates, or other parameters unique to the operation of the unit being tested.

5. Reporting Requirements

Unless otherwise directed by SWCAA, a final test report must be prepared and submitted (hard copy and electronic) to SWCAA within forty-five (45) calendar days of test completion and, at a minimum, must contain the following information:

- (a) A brief description of the purpose of the test, for example, an initial test, a periodic test required by an ADP, a test required by a federal, state, or local rule or regulation, or a test required to determine compliance with a Notice to Correct;
- (b) Description of the unit being tested, including manufacturer, model number, serial number, design capacity, and maximum intended level of operation;
- (c) The location and description of the discharge point (stack, port, etc.), including the dimensions (diameter, length and width, or other) and height above ground level. A photo of the discharge point is highly recommended;
- (d) The location of the sample ports or test location and a description of how the sampling location relates to the discharge point. For example, the sampling location may be in a square duct some distance away from the discharge point, which is a round stack. A photo of the sample ports or test location is highly recommended;
- (e) Time and date of the test and identification and qualifications of the personnel involved;
- (f) Summary of results, reported in units and averaging periods consistent with the application emissions standard or unit;
- (g) Test results must be reported in:
 - (1) ppmv, corrected to 0% moisture and uncorrected for O₂; and
 - (2) pound per hour (lb/hr).
- (h) Summary of air pollution control systems or equipment operating conditions during the test;
- (i) Summary of production related parameters, which may include fuel type, operating temperature, process throughput (such as cm² of chip or mask layers processed), mass balance of chemicals being used and controlled by the tested unit, pressure or pressure drop, pH, recirculation rates, or other parameters unique to the operation of the unit being tested;
- (j) A description of the test methods or procedures used, including all field data, quality assurance/quality control procedures and documentation;
- (k) A description of the analytical procedures used, including all laboratory data, quality assurance/quality control procedures and documentation;
- (l) Copies of field data and example calculations;
- (m) Chain of custody information;
- (n) Calibration documentation;
- (o) Discussion of any abnormalities associated with the results; and

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Air Quality Testing Requirements
Epitaxial Scrubbers

- (p) A statement signed by the senior management official of the testing firm certifying the validity of the source test report. Reports with material mistakes or misinformation may be rejected by SWCAA.

6. Changes to Testing Requirements

The source test must be conducted as specified in the sections above. Minor modifications to the requirements above or to the testing schedule may be requested by the Permittee or their representative, in writing, to SWCAA. Upon review of the request and in accordance with EPA delegation, SWCAA will inform the Permittee, in writing, of any approved modifications.

Appendix F
Air Quality Testing Requirements
Solvent Exhausts EXF-7, EXF-8, and EXF-9

1. Background

The purpose of this testing is to quantify emissions from EPI Scrubbers and to provide an adequate assurance of compliance with the terms and conditions of this ADP.

2. Test Constituents and Test Methods

- (a) Sample ports, traverse points, volumetric flow rate, gas velocity, and temperature using EPA Methods 1 or 1A and 2; and
- (b) Moisture content of stack gas using EPA Method 4 or Oregon Department of Environmental Quality (ODEQ) Method 4; and
- (c) Total Gaseous Organic Compounds (TGOC) using EPA Method 18 or 25A (measured as propane). Non-VOC components measured using EPA Method 18 or a non-methane cutter may be subtracted from a TGOC value determined using EPA Method 25A. Use of a non-methane cutter must be approved by SWCAA in advance;
- (d) Isopropyl alcohol [67-63-0] using EPA Compendium Method TO-15.

3. Test Plan and Notification

A comprehensive test plan must be submitted to SWCAA for review and approval a minimum of ten (10) business days prior to the proposed test date. SWCAA must be notified a minimum of three (3) calendar days prior to the proposed test date so that a SWCAA representative may be present during testing.

4. Test Requirements

- (a) Test Dates.
 - (1) Solvent Exhaust EXF-7 test must be conducted no later than September 30, 2023;
 - (2) Solvent Exhaust EXF-8 test must be conducted no later than September 30, 2023; and
 - (3) Solvent Exhaust EXF-9 test must be conducted no later than September 30, 2023. Subsequent tests must be conducted every five (5) years thereafter. Testing conducted more than three (3) months prior to the due date does not fulfill the testing requirement unless approved in advance by SWCAA.
- (b) Test Duration. Tests must include a minimum of three (3) test runs, each at least one (1) hour in duration, and be performed at normal maximum throughput or process operating conditions.
- (c) Test Location. The Permittee must provide the necessary platform and sampling ports for testing personnel to perform a test of the systems. Testing must be performed at the exhaust of each scrubber at a location that meets the requirements of EPA Methods 1 or 1A and 2.
- (d) Source Operations. Source operations during the emissions test must be representative of the maximum intended level of normal operation. Inability to achieve maximum intended level of normal operation must be preapproved by SWCAA in advance of performing the test.
- (e) Test Records. A complete record of production related parameters, including process startups and shutdowns, control equipment startups and shutdowns, and any adjustments made during testing must be kept during emissions testing to correlate operations with emissions and must be recorded in the test results final report. Include a summary of

Appendix F
Air Quality Testing Requirements
Solvent Exhausts EXF-7, EXF-8, and EXF-9

production related parameters, which may include process throughput, pressure or pressure drop, pH, recirculation rates, or other parameters unique to the operation of the unit being tested.

5. Reporting Requirements

Unless otherwise directed by SWCAA, a final test report must be prepared and submitted (hard copy and electronic) to SWCAA within forty-five (45) calendar days of test completion and, at a minimum, must contain the following information:

- (a) A brief description of the purpose of the test, for example, an initial test, a periodic test required by an ADP, a test required by a federal, state, or local rule or regulation, or a test required to determine compliance with a Notice to Correct;
- (b) Description of the unit being tested, including manufacturer, model number, serial number, design capacity, and maximum intended level of operation;
- (c) The location and description of the discharge point (stack, port, etc.), including the dimensions (diameter, length and width, or other) and height above ground level. A photo of the discharge point is highly recommended;
- (d) The location of the sample ports or test location and a description of how the sampling location relates to the discharge point. For example, the sampling location may be in a square duct some distance away from the discharge point, which is a round stack. A photo of the sample ports or test location is highly recommended;
- (e) Time and date of the test and identification and qualifications of the personnel involved;
- (f) Summary of results, reported in units and averaging periods consistent with the application emissions standard or unit;
- (g) Test results must be reported in:
 - (1) ppmv, corrected to 0% moisture and uncorrected for O₂; and
 - (2) pound per hour (lb/hr).
- (h) Summary of air pollution control systems or equipment operating conditions during the test;
- (i) Summary of production related parameters, which may include fuel type, operating temperature, process throughput (such as cm² of chip or mask layers processed), mass balance of chemicals being used and controlled by the tested unit, pressure or pressure drop, pH, recirculation rates, or other parameters unique to the operation of the unit being tested;
- (j) A description of the test methods or procedures used, including all field data, quality assurance/quality control procedures and documentation;
- (k) A description of the analytical procedures used, including all laboratory data, quality assurance/quality control procedures and documentation;
- (l) Copies of field data and example calculations;
- (m) Chain of custody information;
- (n) Calibration documentation;
- (o) Discussion of any abnormalities associated with the results; and
- (p) A statement signed by the senior management official of the testing firm certifying the validity of the source test report. Reports with material mistakes or misinformation may be rejected by SWCAA.

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6. Changes to Testing Requirements

The source test must be conducted as specified in the sections above. Minor modifications to the requirements above or to the testing schedule may be requested by the Permittee or their representative, in writing, to SWCAA. Upon review of the request and in accordance with EPA delegation, SWCAA will inform the Permittee, in writing, of any approved modifications.

**State Environmental Policy Act
DETERMINATION OF NON-SIGNIFICANCE 23-003**

Description of proposal:

Analog Devices, Inc. (ADI) is a semiconductor manufacturer that designs, manufactures, and markets analog, mixed-signal, and digital signal processing integrated circuits (ICs). The Camas facility produces six-inch wafers. ADI submitted Air Discharge Permit (ADP) Application CL-3209 to the Southwest Clean Air Agency in which the facility is seeking approval to install and operate a new acid scrubber, approval to operate both ammonia scrubbers simultaneously, and approval to increase VOC emissions due to historical increases in production.

Proponent:

Doug Moody, EHS Manager, Analog Devices, Inc.

Location of proposal, including street address if any:

4200 NW Pacific Rim Blvd., Camas, WA 98607

Lead agency:

Southwest Clean Air Agency

The lead agency for this proposal has determined that it does not have a probable significant impact on the environment. An Environmental Impact Statement is not required under Revised Code of Washington (RCW) 43.21C.030(2)(c). This decision was made after reviewing a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

- There is no comment period for this DNS.
- This Determination of Non-Significance is issued under Washington Administrative Code (WAC) 197-11-340(2); the lead agency will not act on this proposal for fifteen (15) days from the date below. Comments must be submitted by _____.

Responsible official: Clinton Lamoreaux, P.E.

Position/title: Chief Engineer

Address: Southwest Clean Air Agency
11815 NE 99th St. Suite 1294
Vancouver, WA 98682-2322

Phone: (360) 574-3058 ext 131

Signature: _____ **Date:** _____