SWCAA
Southwest Clean Air Agency

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September 5, 2024

Ms. Adriana Lopez
Westlake Chemical
PO Box 865
Longview, WA 98632

RE: Final Approval for Synthetic Minor Limits for Carbon Monoxide from HCl Synthesis

Dear Ms. Lopez:

The public comment period for the preliminary determination to issue Air Discharge Permit (ADP) 24-3650 concluded on August 30, 2024. The Southwest Clean Air Agency (SWCAA) did not receive any adverse comment from the public relative to the preliminary determination. Therefore, a final determination to issue ADP 24-3650 has been made pursuant to Section 400-110(4) of SWCAA's General Regulations for Air Pollution Sources. Electronic copies of ADP 24-3650 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 24-3650 may be appealed directly to the Pollution Control Hearings Board (PCHB) 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 Clint Lamoreaux at (360) 574-3058, extension 131.

Sincerely,

Uri Papish
Executive Director

UP:cl

Enclosure: Technical Support Document and Air Discharge Permit 24-3650

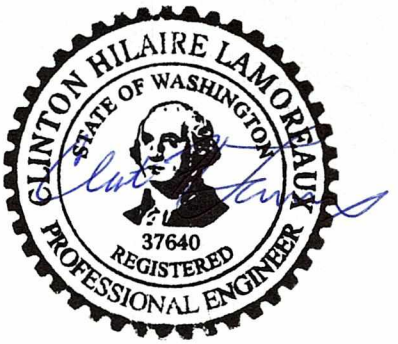
SWCAA
Southwest Clean Air Agency

AIR DISCHARGE PERMIT
24-3650

Preliminary Issued: July 24, 2024

Westlake US 2
2451 Industrial Way, Longview, WA

SWCAA ID – 2237



REVIEWED BY: _____
Clinton Lamoreaux, Chief Engineer

APPROVED BY: _____
Uri Papish, Executive Director

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Appendix A Source Emission Testing Requirements – Chlorine Vent Scrubber
Appendix B Source Emission Testing Requirements – HCl Synthesis Units

1. Equipment/Activity Identification

ID No.	Equipment/Activity	Control Equipment/Measure
1	Chlor-Alkali Production (220 tpd Cl_2, 250 tpd NaOH)	Emergency Vent Scrubber and Hypo Finishing Tower which exhaust to the Chlorine Vent Scrubber
2	Hydrochloric Acid Synthesis Unit #1 (SGL Carbon Group, 88.2 tpd)	HCl Tail Gas Scrubber #1 (for HCl), brine acidification (for CO)
3	Hydrochloric Acid Synthesis Unit #2 (SGL Carbon Group, 88.2 tpd)	HCl Tail Gas Scrubber #2 (for HCl), brine acidification (for CO)
4	Hydrochloric Acid Loading Operations (railcar and truck loading, 400 gpm)	HCl Loading Operations Scrubber and Eductor
5	Salt Handling System	Water suppression
6	General Plant Cooling Tower (8,000 gpm)	Drift eliminator
7	Caustic Evaporation Cooling Tower (1,200 gpm)	Drift eliminator

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 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 24-3650 supersedes ADP 04-2557R4 in its entirety.

Emission Limits

Req. No.	Emission Limits	Equipment/ Activity ID No.
1.	Emissions from the Chlorine Vent Scrubber must not exceed the following: Pollutant — Emission Limit Chlorine — 142 pounds per year, 1.0 ppmvd (one hour average) Emissions must be calculated based on the methodology outlined in Section 6 of the Technical Support Document for this Permit.	1
2.	Emissions from Hydrochloric Acid Synthesis Unit Tail Gas Scrubber #1 must not exceed the following: Pollutant — Emission Limit Chlorine — 11 pounds per year, 1.0 ppmvd (one hour average) Hydrochloric Acid — 55 pounds per year, 10.0 ppmvd (one hour average) Emissions must be calculated based on the methodology outlined in Section 6 of the Technical Support Document for this Permit.	2

Req. No.	Emission Limits	Equipment/ Activity ID No.
3.	Emissions from Hydrochloric Acid Synthesis Unit Tail Gas Scrubber #2 must not exceed the following: Pollutant — Emission Limit Chlorine — 9 pounds per year, 1.0 ppmvd (one hour average) Hydrochloric Acid — 45 pounds per year, 10.0 ppmvd (one hour average) Emissions must be calculated based on the methodology outlined in Section 6 of the Technical Support Document for this Permit.	3
4.	Carbon monoxide emissions from Hydrochloric Acid Synthesis Units #1 and #2 must not exceed 20 pounds per hour (1-hour average) individually and combined. This short-term limit must be met at least 90% of the operating hours each calendar year. Combined carbon monoxide emissions from Hydrochloric Acid Synthesis Units #1 and #2 must not exceed 50.0 tons in any 12 consecutive calendar months. Source Emissions Testing When source emissions test data collected in accordance with Appendix B is available to determine short term (hourly) carbon monoxide emissions, that data takes precedence over the mass balance procedure listed below. Mass Balance Except when carbon monoxide emissions are measured during a source emissions test or with an approved continuous emissions monitoring system, carbon monoxide emissions must be determined using a mass balance approach. The maximum brine carbon content must be determined for the maximum pH and minimum eductor pressure. This maximum carbonate level must be used when the total carbon content of the brine is not measured directly. The permittee may assume that all carbonate in the brine is emitted as carbon monoxide from the HCl Synthesis Units. Alternatively, the permittee may add the following refinements to this calculation: (a) The results of the most recent source emissions testing at the HCl Synthesis Units may be used to determine the conversion rate of CO_2 to CO in the HCl Synthesis Units. Where this option is utilized, the results from testing at the highest H_2 to Cl_2 ratio must be used. (b) The amount of CO_2 in the mixed chlorine feed to the Hydrochloric Acid Synthesis Units may be calculated from the carbon content of the brine entering the electrolyzer (as determined above) and process operating data (e.g. total and liquefied chlorine production, tail gas production, amount of each chlorine stream used for HCl production). When the tail gas is used for HCl synthesis, the amount and concentration of CO_2 in the chlorine liquefaction tail gas must be calculated with the assumption that all CO_2 not accounted for the in liquified chlorine ends up in the tail gas.	2, 3

Req. No.	Emission Limits	Equipment/ Activity ID No.
5.	Emissions from HCl Loading Operations Scrubber must not exceed the following: Pollutant — Emission Limit Hydrochloric Acid — 17.2 pounds per year Emissions must be calculated based on the methodology outlined in Section 6 of the Technical Support Document for this Permit.	4
6.	Emissions from salt handling and storage must not exceed the following: Pollutant — Emission Limit PM_{10} — 559 pounds per year $PM_{2.5}$ — 84 pounds per year Emissions must be calculated based on the methodology outlined in Section 6 of the Technical Support Document for this Permit.	5
7.	Emissions from the General Plant Cooling Tower must not exceed the following: Pollutant — Emission Limit $PM_{10}/PM_{2.5}$ — 295 pounds per year Emissions must be calculated based on the methodology outlined in Section 6 of the Technical Support Document for this Permit.	6
8.	Emissions from the Caustic Evaporation Cooling Tower must not exceed the following: Pollutant — Emission Limit $PM_{10}/PM_{2.5}$ — 22 pounds per year Emissions must be calculated based on the methodology outlined in Section 6 of the Technical Support Document for this Permit.	7
9.	Visible emissions must not exceed zero 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).	Facility-wide

Operating Limits and Requirements

Req. No.	Operating Limits and Requirements	Equipment/ Activity ID No.
10.	Reasonable precautions must be taken at all times to prevent and minimize fugitive emissions from plant operations.	Facility-wide
11.	Operations that cause or contribute to a nuisance odor must use recognized good practice and procedures to reduce these odors to a reasonable minimum.	Facility-wide
12.	Each pollution control device must be operated whenever the processing equipment served by that control device is in operation. Control devices must be operated and maintained in accordance with the manufacturer's specifications. Furthermore, control devices must be operated in a manner that minimizes emissions.	Facility-wide

Req. No.	Operating Limits and Requirements	Equipment/ Activity ID No.
13.	Emission units identified in this Permit must be maintained and operated in total and continuous conformity with the conditions identified in this Permit. SWCAA reserves the right to take any and all appropriate action to maintain the conditions of this Permit, including directing the facility to cease operations until corrective action can be completed.	Facility-wide
14.	The Chlor-Alkali scrubber system liquor recirculation flow rates during operation must not be less than the following measured at the packing: Scrubber — Flow Rate Chlorine Vent Scrubber — 600 gallons per minute Emergency Vent Scrubber — 1,600 gallons per minute Hypo Finishing Tower — 120 gallons per minute	1
15.	The Chlor-Alkali scrubber system liquor pH during operation must not be less than the following measured at the packing: Scrubber — pH Chlorine Vent Scrubber — 14 Emergency Vent Scrubber — 14 Hypo Finishing Tower — 7.5	1
16.	The Chlor-Alkali scrubber system liquor oxidation reduction potential (ORP) during operation must not exceed the following: Scrubber — ORP (mVDC) Chlorine Vent Scrubber — 366 Emergency Vent Scrubber — 366	1
17.	The exhaust stack for the Chlorine Vent Scrubber must discharge at least 55 feet above ground level.	1
18.	Each railcar loaded with chlorine must be vapor tested after loading using an ammonia spray or vapor on all fittings. The presence of any visible emissions is considered an indication of a leak. If a leak is detected the railcar must be emptied unless the leak is fixed before the railcar would have been emptied. Any leak must be repaired before the railcar returns to use.	1
19.	The lower stage scrubbing liquor recirculation rate for the tail gas scrubbers for Hydrochloric Acid Synthesis Units #1 and #2 must be at least the following: Unit — Minimum Flowrate HCl Synthesis Unit #1 — 30 gallons per minute HCl Synthesis Unit #2 — 25 gallons per minute	2, 3
20.	The concentration of the hydrochloric acid produced by Hydrochloric Acid Synthesis Unit #1 and #2 must not exceed 39.0% by weight.	2, 3

Req. No.	Operating Limits and Requirements	Equipment/ Activity ID No.
21.	The carbon content of the brine at the inlet to the electrolyzer, measured as Na_2CO_3 must not exceed the following when either HCl Synthesis Unit is in operation: (a) 0.16 grams per liter (12-month rolling average); and (b) 0.25 grams per liter (1-hour average). The hourly limit must be met at described in Condition 24. Compliance must be determined by sampling the brine upstream of the electrolyzer in accordance with the requirements of the Permit, maintaining the pH of the brine at the inlet to the electrolyzer at or below the limit established in this Permit, and maintaining the brine pressure at the inlet to the purified brine storage tank eductor at or above the minimum level required by this Permit.	2, 3
22.	Prior to initial testing of the residual carbon content of the purified brine downstream of the purified brine storage tank, the pH of the purified brine downstream of the purified brine storage tank must not exceed 6.0 (1-hour average). Thereafter, the pH must not exceed the level at which compliance with the maximum brine carbon content has been demonstrated through sampling. These limits must be met at as described in Condition 24.	2, 3
23.	Prior to initial testing of the residual carbon content of the purified brine at the inlet to the electrolyzer, the brine pressure at the inlet to the purified brine storage tank eductor must be at least 28 psig (1-hour average). Thereafter, the minimum brine pressure at the inlet to the eductor must be at least the level (1-hour average) at which compliance with the maximum brine carbon content has been demonstrated through sampling. This limit must be met as described in Req. #24.	2, 3
24.	The parameters identified in Conditions 21 – 23 of this ADP and listed below must simultaneously be in the ranges required by Conditions 21 – 23 at least 90% of the operating hours each calendar year such that compliance with the hourly carbon monoxide emission limits is assured at least 90% of the operating hours in any 12 consecutive months: (a) The carbon content of the brine at the inlet to the electrolyzer measured as Na_2CO_3. The carbon content must be determined from the results of the most recent testing as required by this ADP unless otherwise approved by SWCAA; (b) The pH of the purified brine downstream of the purified brine storage tank; and (c) The minimum brine pressure at the inlet to the eductor.	2, 3
25.	The HCl Loading Operations Scrubber liquor recirculation flow rate during operation must not be less than 100 gallons per minute.	4
26.	The HCl Loading Operations Scrubber liquor pH during operation must not be less than 10.	4
27.	The vent line to the HCl Loading Operations Scrubber must operate at a vacuum during tanker and railcar connecting and disconnecting.	4

Req. No.	Operating Limits and Requirements	Equipment/ Activity ID No.
28.	Each rubber lined truck or railcar loaded with hydrochloric acid must have a conductivity test performed on the liner to determine if the liner is adequate. Any railcar or truck with a conductivity reading above 2.9 mA using a 3 to 18 volt power source has failed the leak test and must be emptied.	4
29.	Each railcar loaded with hydrochloric acid must be pressure tested to at least 30 psig after loading and a soap bubble or ammonia vapor leak test performed. Each truck loaded with hydrochloric acid must be checked for leaks and a soap bubble or ammonia vapor leak test performed. If there is any visible or audible leak the railcar or truck must be emptied unless the leak is fixed before the railcar or truck would have been emptied. Any leak must be repaired before the railcar or truck returns to use.	4

Monitoring and Recordkeeping Requirements

Req. No.	Monitoring and Recordkeeping Requirements	Equipment/ Activity ID No.
30.	Excess emissions and upset conditions with the potential to cause excess emissions must be recorded for each occurrence.	Facility-wide
31.	The following Chlor-Alkali scrubber system (Chlorine Vent Scrubber, Emergency Vent Scrubber, Hypo Finishing Tower) parameters must be recorded at least once every 12 hours: (a) pH of each scrubbing liquor for each scrubber; (b) Flow rate of scrubber liquor to the packing of each scrubber; and (c) Oxidation reduction potential of the Chlorine Vent Scrubber liquor and Emergency Vent Scrubber liquor.	1
32.	The results of the chlorine railcar ammonia leak check must be recorded for each chlorine railcar filled.	1
33.	The carbon content of the brine downstream of the purified brine storage tank must be measured at least weekly for the first three months following startup of the brine acidification process, and at least once per month thereafter. The pH of the brine downstream of the purified brine storage tank and the brine pressure at the inlet to the purified brine storage tank eductor must be recorded with the associated carbon content to correlate these parameters.	2, 3
34.	The following brine acidification parameters must be monitored continuously and recorded at least once per hour as a one-hour average. Data availability must be at least 95% in any 12 consecutive months. (a) Brine flow; (b) pH of the brine downstream of the Purified Brine Storage Tank; and (c) Pressure of the brine at the inlet to the Purified Brine Storage Tank eductor.	2, 3

Req. No.	Monitoring and Recordkeeping Requirements	Equipment/ Activity ID No.
35.	The following Hydrochloric Acid Synthesis Unit Tail Gas Scrubber parameters must be recorded at least once per hour for each unit: (a) Flow rate of absorption water (lb/hr) to the upper stage packing; and (b) The HCl product concentration (weight percent).	2, 3
36.	The following Hydrochloric Acid Synthesis Unit Tail Gas Scrubber parameters must be recorded at least once every twelve hours for each unit: (a) Recirculation flow rate of scrubber liquor for the lower stage packing; or (b) The status of the low flow switch for the burner for each unit must be recorded if the flow switch trigger value is documented to be at or above the applicable flow limit. All such documentation must be readily available for inspection.	2, 3
37.	The weight percentage and quantity of hydrochloric acid produced must be recorded for each hour of production for each unit.	2, 3
38.	The following HCl Loading Operations Scrubber parameters must be recorded at least once every twelve hours for each unit: (a) Flow rate of scrubber liquor to the packing; and (b) pH of the scrubber liquor.	4
39.	Vacuum in the vent line to the HCl Loading Operations Scrubber must be confirmed and documented at least once for each railcar and tanker truck loaded.	4
40.	The results of each conductivity and leak test of trucks and railcars loaded with hydrochloric acid must be recorded.	4
41.	The amount of salt offloaded must be recorded for each unloading event.	5
42.	With the exception of data logged electronically, each record required by this Air Discharge Permit must include the date and the identity of the person making the record entry.	Facility-wide
43.	All records required by this Air Discharge Permit must be available on site for a minimum period of no less than five years and must be available for inspection by SWCAA representatives.	Facility-wide

Emission Monitoring and Testing Requirements

Req. No.	Emission Monitoring and Testing Requirements	Equipment/ Activity ID No.
44.	Source emissions testing of the Chlorine Vent Scrubber must be conducted no later than the end of October each year. Tests conducted more than three months before the required due date will not satisfy the periodic source emission testing requirement without prior approval from SWCAA. All required testing must be conducted in accordance with Appendix A of this Permit.	1

Req. No.	Emission Monitoring and Testing Requirements	Equipment/ Activity ID No.
45.	Source emissions testing of HCl Synthesis Unit #1 must be conducted no later than the end of October each year. Tests conducted more than three months before the required due date will not satisfy the periodic source emission testing requirement without prior approval from SWCAA. All required testing must be conducted in accordance with Appendix B of this Permit.	2
46.	Source emissions testing of HCl Synthesis Unit #2 must be conducted no later than the end of October each year. Tests conducted more than three months before the required due date will not satisfy the periodic source emission testing requirement without prior approval from SWCAA. All required testing must be conducted in accordance with Appendix B of this Permit.	3

Reporting Requirements

Req. No.	Reporting Requirements	Equipment/ Activity ID No.
47.	Excess emissions must be reported to SWCAA as follows: (a) As soon as possible, but no later than 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 48 hours after discovery for emissions which the permittee wishes to claim as unavoidable pursuant to SWCAA 400-107; and (c) No later than 30 days after the end of the month of discovery for all other excess emissions.	Facility-wide
48.	Deviations from permit conditions must be reported no later than 30 days after the end of the month during which the deviation is discovered.	Facility-wide

Req. No.	Reporting Requirements	Equipment/ Activity ID No.
49.	The following information must be reported to SWCAA by March 15th for the previous calendar year: (a) The amount of chlorine, hydrogen, sodium hypochlorite and sodium hydroxide produced; (b) The total amount of hydrochloric acid produced by each hydrochloric acid synthesis unit; (c) The total amount of salt offloaded; (d) The weight percentage of total chlorine, caustic soda, hydrogen, and bleach products sent to the top three customers on a 100% chemical basis; (e) The number of hours the Chlorine Vent Scrubber, Hydrochloric Acid Synthesis Unit #1, Hydrochloric Acid Synthesis Unit #2, General Cooling Towers, and Caustic Evaporation Cooling Tower operated; (f) The results of required purified brine carbon content monitoring (carbon content (as Na_2CO_3 and associated pH, and eductor pressure for each measurement); (g) Calculated carbon monoxide emissions from each Hydrochloric Acid Synthesis Unit for each day of operation and the information on which the calculations are based. This information must be submitted in an electronic format acceptable to the Southwest Clean Air Agency; and (h) Air emissions of criteria air pollutants, volatile organic compounds, toxic air pollutants (TAPs), and hazardous air pollutants (HAPs) and the data used to calculate annual emissions.	Facility-wide
50.	Upset conditions must be reported to SWCAA as soon as possible after discovery. False indications of excursions resulting solely from monitoring system breakdown, calibration, and maintenance that are not associated with actual excursions in pH, flow, or chlorine emissions are not considered upset conditions. The following are considered upset conditions: (a) An excursion from the permitted pH limit by the Chlor-Alkali Scrubbing System or HCl Loading Operation Scrubber calculated on a 5-minute rolling average basis; (b) An excursion from the permitted flow limit by the Chlor-Alkali Scrubbing System, an HCl Synthesis Unit tail gas scrubber, or the HCl Loading Operations Scrubber calculated on a 5-minute rolling average basis; (c) An excursion from the permitted flow limit by the Chlor-Alkali Scrubbing System, calculated on a 5-minute rolling average basis and any excursion by the Chlorine Vent Scrubber that is simultaneous with an excursion by the Hypo Finishing tower or Emergency Vent Scrubber; and (d) Ambient chlorine detections of known cause related to releases of greater than or equal to 0.01 pounds estimated based on mass balance calculations or best engineering judgement. Ambient chlorine detections exceeding 3 ppm or a duration longer than 60 seconds, with no known cause are considered upset conditions. Actions taken to investigate detections with no known cause must be documented and reported. Lesser excursions not associated with excess emissions are not permit deviations.	Facility-wide

Req. No.	Reporting Requirements	Equipment/ Activity ID No.
51.	Emission test results must be reported to SWCAA in writing within 45 days of test completion.	1, 2, 3
52.	The permittee must maintain a Risk Management Plan with the Environmental Protection Agency as required by 40 CFR Part 68.	Facility-wide

3. General Provisions

Req. No.	General Provisions
A.	For the purpose of ensuring compliance with this ADP, duly authorized representatives of the Southwest Clean Air Agency 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 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.
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 without prior SWCAA approval, 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 will remain in effect and be 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.

Req. No.	General Provisions
K.	For the purposes of establishing if a condition of this ADP has been violated or is being violated, nothing in this ADP precludes the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test procedures or methods had been performed.

Appendix A
Emission Testing Requirements
Chlorine Vent Scrubber

1. Introduction:

a. The purpose of these testing requirements is to quantify emissions from the Chlorine Vent Scrubber and to demonstrate compliance with the requirements of this Air Discharge Permit.

2. Testing Requirements:

a. Source emissions testing of the Chlorine Vent Scrubber must be conducted no later than the end of October each year. Tests conducted more than three months before the required due date will not satisfy the periodic source emission testing requirement without prior approval from SWCAA. The use of an alternative test schedule must be pre-approved by SWCAA in writing.

Unless otherwise specified, testing for each constituent must consist of a minimum of three sampling runs of the duration specified below.

Constituent	Test Method or Equivalent[1]	Minimum Test Duration
Stack gas velocity, flow rate	EPA Methods 1 and 2, 2A, 2C, 2D, or vane anemometer	N/A
Stack gas dry molecular weight (as necessary)[2]	EPA 3C or ASTM D1946	60 minutes
Stack gas moisture content	EPA Method 4	60 minutes
Chlorine (Cl_2)	EPA Method 26 or CARB Method 421. Midget or regular sized impingers may be used.	60 minutes

[1] The use of an alternate or equivalent test method must be pre-approved by SWCAA in writing.

[2] Measurement of stack gas dry molecular weight may not be necessary depending on the stack gas velocity/flow rate methodology used.

3. Source Operation:

a. All relevant process parameters must be recorded during testing and reported with the final test report including:
   (1) Scrubber pH;
   (2) Scrubbing liquor flow rate;
   (3) Scrubbing liquor oxidation reduction potential (ORP);
   (4) Startups and shutdowns; and
   (5) Plant production.

b. Source operations during the emissions test must be representative of the highest annual scrubber loading rate (e.g. highest annual production rate).

Appendix A
Emission Testing Requirements
Chlorine Vent Scrubber

4. Reporting Requirements:

The results of all required testing must be submitted to SWCAA within 45 days of test completion. Unless otherwise directed by SWCAA, an electronic copy (e.g. portable document format) of the report must be submitted. The report must include:

a. Description of the source including manufacturer, model number and design capacity of the equipment, and the location of the sample ports or test locations.
b. Time and date of the test and identification and qualifications of the personnel involved.
c. Summary of results, reported in units and averaging periods consistent with the application emissions standard or unit.
d. Summary of control system or equipment operating conditions.
e. Summary of production related parameters.
f. A description of the test methods or procedures used, including all field data, quality assurance/quality control procedures and documentation.
g. A description of the analytical procedures used, including all laboratory data, quality assurance/quality control procedures and documentation.
h. Copies of field data and example calculations.
i. Chain of custody information.
j. Calibration documentation.
k. Discussion of any abnormalities associated with the results.
l. A statement signed by the senior management official of the testing firm certifying the validity of the source test report.

5. Changes to Testing Requirements:

The source test must be conducted as specified in the sections above. The Permittee may submit a written request to SWCAA for approval of minor modifications to the requirements above or the testing schedule. Upon review of the request and in accordance with EPA delegation, SWCAA will inform the Permittee in writing of any approved modifications.

Appendix B
Source Emission Test Requirements
Hydrochloric Acid Synthesis Units

1. Introduction:

a. The purpose of these testing requirements is to quantify emissions from the tail gas scrubbers for the Hydrochloric Acid Synthesis Units and to demonstrate compliance with the requirements of this Air Discharge Permit.

2. Testing Requirements:

a. Source emissions testing of the Hydrochloric Acid Synthesis Unit #1 and Hydrochloric Acid Synthesis Unit #2 must be conducted at the frequency indicated in the table below. Tests conducted more than three months before the required due date will not satisfy the periodic source emission testing requirement without prior approval from SWCAA. The use of an alternative test schedule must be pre-approved by SWCAA in writing.

Unless otherwise specified, testing for each constituent must consist of a minimum of three sampling runs of the duration specified below.

Constituent	Test Method or Equivalent[1]	Testing Schedule / Frequency	Minimum Test Duration
Stack gas dry molecular weight	Integrated sample analyzed by for CO, CO_2, H_2, O_2, N_2 by gas chromatograph (e.g., ASTM D1946)	No later than the end of October each year.	Target 60 minutes[2]
Stack gas velocity, flow rate	EPA Methods 1 with vane anemometer	No later than the end of October 2024 and no later than the end of October every two years thereafter.	N/A
Stack gas moisture content	EPA Method 4 or saturation may be assumed		60 minutes
Chlorine (Cl_2)	EPA Method 26 or CARB Method 421 with midget or regular sized impingers		60 minutes
Hydrochloric Acid (HCl)	EPA Method 26 or CARB Method 421 with midget or regular sized impingers. Sampling system may be unheated to prevent the possibility of igniting H_2 in the sample stream.		60 minutes

[1] The use of an alternate or equivalent test method must be pre-approved by SWCAA in writing.
[2] Integrated sampling must target 60 minutes, however the actual sampling time may vary.

Appendix B
Source Emission Test Requirements
Hydrochloric Acid Synthesis Units

3. Source Operation:

a. All relevant process parameters must be recorded during testing and reported with the final test report including:
   (1) Flow rate of scrubbing liquor in each scrubber stage;
   (2) Excess carbonate at the inlet to the electrolyzer;
   (3) Tail gas flow rate to each HCl Synthesis Unit;
   (4) The Cl_2 to H_2 feed ratio;
   (5) Startups and shutdowns; and
   (6) Hydrochloric acid production rate.

b. Source operations during the emissions test must be representative of the highest annual scrubber loading rate (e.g., highest annual production rate) and highest H_2:Cl_2 ratio unless otherwise approved by SWCAA.

4. Reporting Requirements:

The results of all required testing must be submitted to SWCAA within 45 days of test completion. Unless otherwise directed by SWCAA, an electronic copy (e.g., portable document format) of the report must be submitted. The report must include:

a. Description of the source including manufacturer, model number and design capacity of the equipment, and the location of the sample ports or test locations.
b. Time and date of the test and identification and qualifications of the personnel involved.
c. Summary of results, reported in units and averaging periods consistent with the application emissions standard or unit.
d. Summary of control system or equipment operating conditions.
e. Summary of production related parameters.
f. A description of the test methods or procedures used, including all field data, quality assurance/quality control procedures and documentation.
g. A description of the analytical procedures used, including all laboratory data, quality assurance/quality control procedures and documentation.
h. Copies of field data and example calculations.
i. Chain of custody information.
j. Calibration documentation.
k. Discussion of any abnormalities associated with the results.
l. A statement signed by the senior management official of the testing firm certifying the validity of the source test report.

5. Changes to Testing Requirements:

The source test must be conducted as specified in the sections above. The Permittee may submit a written request to SWCAA for approval of minor modifications to the requirements above or the testing schedule. Upon review of the request and in accordance with EPA delegation, SWCAA will inform the Permittee in writing of any approved modifications.