

**YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT**

1947 Galileo Court, Suite 103; Davis, CA 95618

Phone (530) 757-3650 Fax (530) 757-3670

**FACILITY NUMBER:** 00209

**SIC CODE:** 2873

**AUTHORITY TO CONSTRUCT**

**C-12-82**

**IS HEREBY GRANTED TO**

**AGRIUM U.S. INC.**

**3961 Channel Drive**

**West Sacramento, CA 95691**

**EQUIPMENT LOCATION:** 3961 Channel Drive; West Sacramento, CA

**TO CONSTRUCT**

**PROCESS DESCRIPTION:** Nitric Acid Production; Modification of P-37-82(a4) to install a hydrogen injection system serving the Nitrogen Oxides control device and to amend the applicable visible emission evaluation conditions.

**EQUIPMENT INVENTORY:** One (1) 3700 BHP air compressor; one (1) 5 HP stripper feed pump; one (1) 10 HP condensate feed pump; one (1) 10 HP ammonia feed pump; one (1) 15 HP acid feed pump; and one (1) 20 HP raw water pump

**- Total Billing: Schedule 1, 3760 HP -**

**CONTROL EQUIPMENT INVENTORY:**

Nitrogen Oxides (NO<sub>x</sub>) Decomposer, carbon monoxide (CO) abatement device, and hydrogen (H<sub>2</sub>) injection system

**PERMITTED EMISSION LIMITS:**

Pollutant	Daily	Qtr #1	Qtr #2	Qtr #3	Qtr #4	Yearly
	[lb]	(Jan 1-Mar 31) [lb]	(Apr 1-June 30) [lb]	(July 1-Sept 30) [lb]	(Oct 1-Dec 31) [lb]	
CO	1,000.0	90,000	91,000	92,000	92,000	168.00
NO <sub>x</sub>	250.0	22,500	22,750	23,000	23,000	42.00

**PERMITTED PROCESS LIMITS:**

	Daily	Qtr #1 (Jan 1-Mar 31)	Qtr #2 (Apr 1-June 30)	Qtr #3 (July 1-Sept 30)	Qtr #4 (Oct 1-Dec 31)	Yearly
	[lb]	[lb]	[lb]	[lb]	[lb]	[tons]
CO	1,000.0	90,000	91,000	92,000	92,000	168.00
NO <sub>x</sub>	250.0	22,500	22,750	23,000	23,000	42.00

The following information is included to inform and assist the Permit Holder in achieving compliance with applicable provisions of Federal, State, and District Rules and Regulations. The following set of referenced regulations are not intended to be either comprehensive or exclusive, nor are they intended to be emission limiting permit conditions, but they are still applicable rules of the District. Occasionally laws are amended. The amended versions of the referenced rules shall be deemed to be in effect. **It is the Permit Holder's responsibility to comply with all applicable Rules and Regulations.**

1. The Permit Holder shall submit the Permit Notification Card after completing construction, installation, initial adjustment, or shakedown, and no later than 48 hours after beginning actual operation of the equipment listed in the Authority to Construct (ATC). For modifications of existing permits not requiring a physical change, the Permit Holder shall submit the Permit Notification Card no later than 48 hours after beginning operation of the equipment under the revised conditions of this ATC. The Permit Notification Card serves as the Permit to Operate (PTO) application, while the ATC and its conditions shall function as a temporary PTO until the final PTO is issued or denied. Operation beyond the shakedown period and the allowable 48 hours of actual operation without the submission of a Permit Notification Card will be considered operation without a valid permit and may be subject to enforcement action. [District Rule 3.1, §402]
2. The District requires an inspection of the equipment after completion of the construction and prior to the issuance of the Permit to Operate. [District Rule 3.1, §402]
3. An authorization to construct shall remain in effect only until the application for Permit to Operate is granted or denied; however, such an authorization shall not remain in effect beyond two years from the date of issuance unless the District finds that the time required for construction requires an extension and grants one or more extensions, for a total time not to exceed five years from the date of issuance. [District Rule 3.1, §407]

The following set of conditions are established by the District to provide enforceable operating parameters as authorized by California Health and Safety Code Section 42301 and District Rule 3.1, Section 402. If any of the rules and regulations referenced below are amended subsequent to the issuance date of this permit, resulting in the amended rule differing from or superseding the corresponding condition, then the Permit Holder shall be required to comply with the amended rule or regulation and shall no longer be required to comply with the superseded condition.

4. The mass emissions from the nitric acid production facility (including periods of start-up and shutdown) shall not exceed the daily, quarterly, or annual values listed in the PERMITTED EMISSION LIMITS table. [District Rule 3.4, §409.2(b)]
5. Except for qualifying periods of equipment startup or shutdown, the nitrogen oxides (NO<sub>x</sub>) emissions (expressed as NO<sub>2</sub>) shall not exceed 3.0 pound per ton (lb/ton) nitric acid (HNO<sub>3</sub>) produced (expressed as 100% nitric acid by mass) averaged over a three (3) hour rolling period. [District Rule 2.42, §110 & §301, and 40 CFR Part 60.72(a)(1)]
6. Except for qualifying periods of equipment startup or shutdown, no activity associated with the nitric acid manufacturing process shall discharge into the atmosphere any air contaminant for a period or periods aggregating more than three (3) minutes in any one (1) hour which is:
  - a. Half as dark or darker in shade as No. 1 on the Ringelmann Chart; or
  - b. 10% opacity. [District Rule 2.3, District Rule 2.42, §110 & §302, and 40 CFR Part 60.72(a)(2)]
7. The Permit Holder shall not discharge into the atmosphere from any single source of emissions whatsoever, any air contaminant for a period or periods aggregating more than three (3) minutes in any one (1) hour which is:
  - a. As dark or darker in shade than No. 1 on the Ringelmann Chart; or
  - b. Greater than 20% opacity. [District Rule 2.3 and District Rule 3.4]
8. The Permit Holder shall minimize to the maximum extent practicable the frequency, duration, and emissions of all qualifying periods of startup and shutdown. Each qualifying period shall not exceed three (3) hours and shall be determined as follows:
  - a. Startup Period - The period of time between when feedstock is introduced into the nitric acid production process and the equipment achieves the proper operating temperature and stable operating conditions. The period will exclude the time required to preheat the control equipment.
  - b. Shutdown Period - The period of time after feedstock is no longer introduced in a nitric acid production unit. The period will exclude the time required to cool down the control equipment. [District Rule 2.42, §110, §206 & §207]
9. The nitric acid production facility shall be operated in accordance with the requirements of 40 CFR Part 60 - Subpart G (Standards of Performance for Nitric Acid Plants). [40 CFR Part 60.70 through 60.74]
10. The Permit Holder shall comply with the procedures and schedules contained in the most recent Operation and Maintenance (O&M) Plan submitted to, and approved by, the District. [District Rule 2.42, §402 and District Rule 3.4, §409]
11. The Permit Holder shall install and maintain such facilities as are necessary for sampling and testing purposes. The number, size, and location of sampling ports shall be in accordance with Air Resources Board Test Method 1 or EPA Test Methods. The location and access to the sampling platform shall be in accordance with the General Industry Safety Orders of the State of California. [District Rule 3.4, §409]

12. The Permit Holder shall install, calibrate, maintain, and operate a continuous emission monitoring system (CEMS) for measuring carbon monoxide (CO) emission concentrations. [District Rule 3.4, §409]
13. The Permit Holder shall install, calibrate, maintain, and operate a CEMS for measuring NO<sub>x</sub> emission concentrations. [District Rule 2.42, §303 and 40 CFR Part 60.73(a)]
14. The CO CEMS shall comply with the requirements specified in 40 CFR Part 60 - Appendix B, Specification 4 or other alternative methods approved by the U.S. EPA and the District. [District Rule 3.4, §409]
15. The NO<sub>x</sub> CEMS shall comply with the requirements specified in 40 CFR Part 60 - Appendix B, Specification 2 or other alternative methods approved by the U.S. EPA and the District. [District Rule 2.42, §303.1 and 40 CFR Part 60.73(a)]
16. The NO<sub>x</sub> CEMS shall be calibrated and checked using a nitrogen oxide (NO) span gas with a value between 450 and 500 ppmv, or other alternative methods approved by the U.S. EPA and the District. [District Rule 2.42, §303.2 and 40 CFR Part 60.73(a)]
17. Each CEMS (recorder output) shall have a high-level value between 1.5 times the pollutant concentration corresponding to the emission standard level and the span value. [40 CFR Part 60 - Appendix B, Performance Specifications 2 & 4, Section 6.1.1.2]
18. The calibration gas shall have a reference value between 50% and 100% of the high-level value. [40 CFR Part 60 - Appendix B, Performance Specifications 2 & 4, Section 6.1.2]
19. Each CEMS shall complete a minimum of one (1) cycle of operation (sampling, analyzing, and data recording) for each successive fifteen (15) minute period. [40 CFR Part 60.13(e)(2)]
20. One (1) hour averages shall be computed from four (4) or more data points equally spaced over each one (1) hour period. [40 CFR Part 60.13(h)]
21. The data accumulated during periods of CEMS breakdowns, repairs, calibration checks and zero and span adjustments, shall not be included in the data average. [40 CFR Part 60.13(h)]
22. Each CEMS shall be in continuous operation except for system breakdowns, repairs, calibration checks, and zero and span adjustments. [40 CFR Part 60.13(e)]
23. The Permit Holder shall check the zero and span calibration drifts at least once daily (24 hour) in accordance with a written procedure. [40 CFR Part 60.13(d)(1)]
24. The zero and span CO calibrations shall be adjusted whenever the daily zero drift or the daily span drift deviates from the reference value of the calibration gas by more

- than two-times 5% of the span value. [District Rule 3.4, §409 and 40 CFR Part 60 - Appendix B, Specification 4, Section 13.1]
25. The zero and span NO<sub>x</sub> calibrations shall be adjusted whenever the daily zero drift or the daily span drift deviates from the reference value of the calibration gas by more than two-times 2.5% of the span value. [40 CFR Part 60.13(d)(1) and 40 CFR Part 60 - Appendix B, Specifications 2]
  26. The Permit Holder shall perform a weekly visible emissions evaluation of the nitric acid production plant using U.S. EPA Method 22. Each evaluation shall consist of at least six (6) continuous minutes and shall be performed while the plant is in operation. Plant personnel performing the observations may be certified, previously certified, or non-certified in U.S. EPA Method 9, but must be thoroughly knowledgeable of the "Visible Emission Field Manual Method 9 and Method 22." [District Rule 3.4, §409]
  27. If visible emissions are observed from the nitric acid plant, the Permit Holder shall:
    - a. Immediately take corrective action to minimize or eliminate the visible emissions;
    - b. Immediately conduct an U.S. EPA Method 9 test; and
    - c. Conduct an U.S. EPA Method 9 test daily until the opacity problem is successfully rectified. [District Rule 3.4, §409]
  28. The Permit Holder shall perform a source test at least once every twelve (12) consecutive calendar months to demonstrate compliance with the following items:
    - a. CO concentration (ppmvd @ 15% O<sub>2</sub>);
    - b. CO mass emissions (lb/day);
    - c. NO<sub>x</sub> concentration (ppmvd @ 15% O<sub>2</sub>);
    - d. NO<sub>x</sub> mass emissions (lb/day and lb/ton nitric acid produced); and
    - e. Opacity (%). [District Rule 2.42, §304 and District Rule 3.4, §409]
  29. The Permit Holder shall perform a Relative Accuracy Test Audit (RATA) of the CO and NO<sub>x</sub> CEMS at least once every twelve (12) consecutive calendar months. The RATA shall be performed in accordance with 40 CFR Part 60 - Appendix F (Quality Assurance Procedures), or approved equivalent. [District Rule 3.4, §409 and 40 CFR Part 60 - Appendix F, Procedure 1, Section 5.1.1]
  30. The Permit Holder shall conduct the following test methods (or alternative test methods approved by the U.S. EPA and the District) to measure the required pollutant emissions during any emission testing event. If the source wishes to use an alternative methodology a complete and detailed description of the method must be submitted to the District for written approval no less than thirty (30) days prior to the performance evaluation.
    - a. CO - U.S. EPA Method 10;
    - b. NO<sub>x</sub> - U.S. EPA Method 7;
    - c. Volumetric Flow rate - U.S. EPA Method 2; and
    - d. Visible Emission Evaluation - U.S. EPA Method 9. [District Rule 2.42, §601 & §604, District Rule 3.4, §409, and 40 CFR Part 60.74(b)(2) and (b)(3)]

31. The District must be notified prior to any emissions testing event (source test or RATA), and a protocol must be submitted for approval thirty (30) days prior to testing. The results of an emissions testing event shall be submitted to the District within sixty (60) days of the test date. The protocol and report shall be mailed to the attention of the Supervising Air Quality Engineer. [District Rule 3.4, §409]
32. The Permit Holder shall establish a conversion factor for the purpose of converting CO monitoring data (in ppmv) into the applicable CO compliance limit units (lb/day). [District Rule 3.4, §409]
33. The Permit Holder shall determine a NO<sub>x</sub> conversion factor used to convert the NO<sub>x</sub> CEMS data (in ppmv) into the applicable NO<sub>x</sub> compliance limit units (in lb/ton) using the data from the most recent source test submitted to, and approved by, the District. The NO<sub>x</sub> emission conversion factor shall:
  - a. Be calculated using the equation contained in 40 CFR Part 60.74(b)(1);
  - b. Be calculated using the CEMS and source test data pertaining to the same operating time frame;
  - c. Be calculated by dividing the source test data averages (in lb/ton) by the corresponding CEMS data averages (in ppmv) to obtain a conversion factor expressed in the units of lb/ton per ppmv; and
  - d. Be reestablished during any source test or RATA performed. [District Rule 2.42, §602 & §603, 40 CFR Part 60.73(b), and 60.74(b)(1)]
34. The Permit Holder shall maintain records of the occurrence and duration of any:
  - a. Startup, shutdown, or malfunction in the operation of an affected facility;
  - b. Any malfunction of the air pollution control equipment; and
  - c. Any periods during which a CEMS or monitoring device is inoperative. [40 CFR Part 60.7(b)]
35. The Permit Holder shall maintain an operating log for the facility that includes, on a daily basis:
  - a. The actual startup and shutdown time;
  - b. Total hours of operation, amount of nitric acid (HNO<sub>3</sub>) produced (expressed as 100% acid strength);
  - c. Operating system parameters;
  - d. The exhaust gas NO<sub>x</sub> concentrations in parts per million volume (ppmv) on a dry basis; and
  - e. The exhaust gas NO<sub>x</sub> emission rate in lb/ton HNO<sub>3</sub> per three (3) hour rolling average. [District Rule 2.42, §502 and 40 CFR Part 60.73(c)]
36. The Permit Holder shall record all U.S. EPA Method 9 and/or Method 22 observations using a form similar to Appendix A of the "Visible Emissions Field Manual Method 9 and 22." [District Rule 3.4, §409]
37. The Permit Holder shall submit a monthly CO and NO<sub>x</sub> emission report to the District within fifteen (15) days of the end of the month. The report shall provide average daily CO and NO<sub>x</sub> concentrations (ppm), daily CO and NO<sub>x</sub> emissions in units of the District standard (lbs/day), and aggregate CO and NO<sub>x</sub> emissions in tons. [District Rule 3.4, §409]

38. The Permit Holder shall submit a quarterly excess emissions and monitoring system performance report and/or a summary report form to the District and U.S. EPA, Region IX within thirty (30) days of the end of each quarter. [40 CFR Part 60, Section 60.7(a)(7)(c)]
39. The Permit Holder shall submit a summary report and excess emissions and monitoring report if the total duration of excess emissions for the reporting period is 1% or greater of the total operating time for the reporting period, or if the total CEMS downtime for the reporting period is 5% or greater of the total operating time for the reporting period. [40 CFR Part 60.7(d)(2)]
40. The Permit Holder shall report all excess emissions to the District within ninety-six (96) hours of the occurrence of excess emissions. [District Rule 3.1, §405.4]
41. The Permit Holder shall maintain all records required by this permit on-site for a period of five (5) years from the date of entry and make them available to the APCO upon request. [District Rule 2.42, §501 and 40 CFR Part 60.7(f)]

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26, Part 4, Chapter 3, of the Health & Safety Codes of the State of California or the Rules and Regulations of the Yolo-Solano Air Quality Management District.

Mat Ehrhardt, P.E.  
AIR POLLUTION CONTROL OFFICER

By: \_\_\_\_\_

Date of Issuance: \_\_\_\_\_

ADM