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PROPOSED ADOPTION OF RULE 2.42, NITRIC ACID PRODUCTION

FINAL STAFF REPORT

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I. EXECUTIVE SUMMARY

On May 13, 2009, the Yolo-Solano Air Quality Management District (District) Board of Directors will consider the adoption of proposed Rule 2.42, Nitric Acid Production. The rule will affect weak nitric acid production facilities operating within the District's jurisdiction and serve to limit the amount of nitrogen oxide (NO_X) and visible emissions from this type of facility.

The District was required to adopt a rule for this source category in the Reasonably Available Control Technology (RACT) State Implementation Plan (SIP) (dated September 13, 2006), since the District does not currently have a prohibitory rule regulating this source category and the single source subject to this rule is considered a major source for NO_X.

The main requirements of Rule 2.42 will be:

1. Establish a 3-hour rolling average for gaseous NO_X emissions. Specifically, this 3-hour rolling average for NO_X conforms with the current federal new source performance standard of 3.0 pounds of NO_X (expressed as nitrogen dioxide, NO_2) per ton of nitric acid produced (expressed as 100% nitric acid).

2. Establish a visible emission limit of 10% opacity (equivalent to half the darkness of Ringelmann 1).

3. Establish monitoring and recordkeeping requirements.

4. Establish the standard performance specification methods of the continuous emission monitoring systems.

The single facility subject to this rule produces weak nitric acid for use in the production of a solution of urea and ammonium nitrate in water. The nitrogen based solution is used as a fertilizer by the agricultural industry. The affected source has a permitted potential to emit of 40.08 tons of NO_X per year, which is above the major source threshold of 25 tons per year. Furthermore, the source is also subject to the requirements of the Environmental Protection Agency's (EPA's) New Source Performance Standards (NSPS) for Nitric Acid Plants contained in 40 Code of Federal Regulations (CFR) Part 60, Subpart G (§60.70). The subpart requires that the source comply with a NO_X emission limit of 3.0 pounds per ton of nitric acid produced, install and operate a NO_X continuous emission monitoring system (CEMS), and comply with a visible emission limit of 10%. The source is equipped with a non-selective catalytic reduction system designed to control NO_X emissions and comply with the NSPS requirements. Since the facility currently complies with the emission limits proposed by the rule, the District anticipates no NO_X reductions from the adoption of this rule.

The District does not expect the proposed rule to have either a significant nor a detrimental effect on the environment. Therefore, staff has prepared a Notice of Exemption (NOE) to satisfy the California Environmental Quality Act (CEQA) requirements. The NOE states that the adoption of this proposed rule is exempt from the requirements of CEQA pursuant to Section 15308, Actions by Regulatory Agencies for Protection of the Environment.

A. BACKGROUND

Overview of Source Category

According to the EPA, the majority of the nitric acid (HNO_3) plants operating in the United States are located in and around agricultural regions since about 70% of the total amount of nitric acid produced is used in the production of ammonium nitrate (NH_4NO_3) (an ingredient of agricultural fertilizers). Although, nitric acid can be produced in a wide range of strengths, "weak acid" commonly refers to acids with strengths between 30% and 70%, while strong acids are considered to have strengths above 90%. As such, it is regulatory convention to require that NO_X emission data be reported as the pounds of NO_X (expressed as NO_2) emitted per ton of nitric acid manufactured (expressed at 100% strength).

Weak nitric acid is commonly manufactured using an ammonia-oxidation process that is comprised of three sub-processes. First, a high temperature catalytic reaction is used to convert an ammonia (NH_3) and oxygen (O_2) mixture into nitrogen oxide (NO) and water (H_2O). Next, NO is further oxidized (non-catalytically) into NO_2 by simultaneously reducing the process' temperature and increasing its pressure. Lastly, an absorption tower is used to convert the NO_2 into nitric acid (HNO_3) and NO by fully mixing liquid dinitrogen oxide (N_2O) compounds and deionized water with the NO_2 gases. Oxygen is re-introduced into the absorption vessel in order to re-oxidize any NO that is created in this step.

Currently, Agrium U.S., Inc. (Agrium) operates the only nitric acid production facility within the District. The facility is located in West Sacramento and is currently used to produce weak acid in the 50% strength range. The facility is equipped with a Non-Selective Catalytic Reduction (NSCR) system that uses a catalytic element and natural gas as an auxiliary fuel to reduce NO_X emissions released from the production process. As contained in the EPA's Alternative Control Techniques Document (Page 5-17), NSCR systems are expected to achieve NO_X reductions in the range of 94.7% to 99.1%.

Agrium's specific control system is required by the facility's local and federal permit conditions to be equipped with a continuous emission monitoring system (CEMS) for both NO_X and CO pollutants. The CEMS is designed to allow the facility operators to calculate the process' realtime NO_X and CO emission concentrations, and extrapolate the facility's hourly mass emissions. The facility's permits also require that the source perform a source test to demonstrate compliance with the facility's mass emission limits, Federal NSPS limit, and a Relative Accuracy Test Audit (RATA) at least once every four (4) operating quarters.

Reason for Rulemaking

According to EPA's "Final Rule to Implement the 8-Hour Ozone National Ambient Air Quality Standards (NAAQS)" (70 Federal Register 71612, November 29, 2005), areas classified as "moderate" nonattainment or higher must, as part of their SIP revisions, submit a demonstration that their current rules fulfill 8-hour ozone RACT requirements for all Control Technique Guidelines (CTG) categories and all major non-CTG sources. Such demonstrations can be made with either a new RACT determination, such as adopting a prohibitory rule that meets RACT, or a certification that previous RACT determinations satisfy RACT for the 8-hour ozone standard. Because the Agrium facility is a major non-CTG source and the District does not currently have a prohibitory rule specifically regulating

nitric acid production facilities, the District was required in the RACT SIP to adopt a RACT compliant rule for this source category. The RACT requirements are to be "reasonable," and may not necessarily reflect the Best Available Retrofit Control Technology (BARCT) expected of existing sources, or the Best Available Control Technology (BACT) or Lowest Achievable Emission Rate (LAER) levels expected of new sources. In determining RACT for this source category, the District considered the source category as a whole and all applicable rules that have been adopted by other Districts.

As part of evaluating RACT for this category of source, the District has examined EPA's Alternative Control Techniques Document (ACT) as well as the applicable rules from other air districts. The EPA's ACT states that the emissions for a NSCR controlled facilities range between 0.4 lb/ton to 2.30 lb/ton, with an average emission factor of 1.0 lb/ton (Page 5-31). From Pages 5-16 and 5-17, this average emission factor is based on data from three NSCR controlled facilities using natural gas in their control systems and two facilities using purge gas. Of these five facilities only the three facilities using natural gas are surrogates for the existing Agrium facility. Furthermore, the emission factors contained in the report are from a single test of each facility performed prior to the publication of the document in 1991. Accordingly, the District does not consider that the average emission factor stated in the document can be applied as RACT to the Agrium facility.

From a search of the California Air Resources Board (ARB) "District Rule Database," it was determined that there are approximately 31 rules pertaining to nitric acid production facilities. Of these regulations, 14 adopt by reference the requirements of EPA's NSPS of 40 CFR Part 60, Subpart G (with no additional performance or monitoring requirements not already contained in the NSPS of Subpart G), while 14 other rules require that nitric acid facilities install and maintain continuous monitoring systems for NO_X emissions (that comply with the established NSPS requirements). Only South Coast AQMD's Rule 1159 (Nitric Acid Units - Oxides of Nitrogen) specifically enforces a NO_X emission limit that is more stringent than Subpart G's 3.0 pound per ton, per 3-hour rolling average. South Coast's Rule effectively reduces the averaging period from three (3) hours to one (1) hour while retaining the 3.0 pound per ton ratio. The remaining two (2) rules, South Coast's Rule 429 and Antelope Valley AQMD's Rule 429 (Start-up and Shutdown Exemption Provisions for Oxides of Nitrogen) exempt an affected production facility from the NO_X emission limitations of their respective Rule 1159 emission limits during scheduled periods of shutdowns and startups. It should be noted that Antelope Valley's APCD version of Rule 1159 has been rescinded. The District has determined that the control measures present in this proposed rule are RACT.

II. DISCUSSION OF PROPOSED RULE 2.42 REQUIREMENTS

Listed below are section by section descriptions of the proposed requirements of Rule 2.42 - Nitric Acid Production.

Section 100 - General

Section 101 - Purpose: The purpose of the rule is to limit the NO_X and visible emissions from nitric acid production facilities.

Section 102 - Applicability: The rule is applicable to any facility which produces weak nitric acid.

Section 103 - Severability: If any provision, clause, sentence, paragraph, section or part of this rule for any reason is judged to be unconstitutional or invalid, such judgment shall not affect or invalidate the remainder of the rule.

Section 104 - Violations: The section of the proposed rule clarifies what constitutes a violation of the rule.

Section 110 - Exemption - Equipment Startup and Shutdown: Given the types of control technologies available, Staff beleives there exists short periods of emissions during startup and shutdown when despite best efforts in planning, design, and operating procedures, the otherwise applicable emission standard cannot be met. Therefore Staff is proposing that this section of the rule exempt the gaseous and visible emissions resulting from a production facility's startup and/or shutdown. The emissions from these periods will be exempted from the standards of the rule provided that the duration and frequency of these periods are minimized to the maximum extent practicable and the associated emissions have been minimized as much as technologically feasible. Staff considers the rule's startup and shutdown definitions, enhanced monitoring and recordkeeping requirements, and emission control system/CEMS operating and maintenance plans to be "narrowly tailored" and compliant with the nine requirements contained in EPA's "policy on Excess Emissions During Malfunctions, Startup, and Shutdown" (dated August 11,1999).

Section 200 - Definitions

The rule proposes the definition of a total of eight (8) terms in order to adequately describe all aspects of the rule and its requirements.

Section 300 - Standards

Section 301 - NO_X Emission Limitation: This section of the proposed rule establishes the applicable NO_X emission limit over the applicable averaging period, where the NOx mass emissions must be expressed as NO_2 and the HNO_3 must be expressed at 100% strength by mass. As proposed, the 3-hour rolling averaged NO_X concentration emission limit is consistent with the NSPS NO_X emission limit of 3.0 lb/ton HNO_3 of 40 CFR Section 60.72(a)(1), and the 3-hour rolling averaging period of 40 CFR Section 60.73(e).

Section 302 - Opacity Limitations: The rule proposes to establish a limit on the visible emissions produced by the weak nitric acid production facility that is consistent with the 10% opacity limit of Subpart G (40 CFR, Section 60.72(a)(2)). Per District convention, the section will also contain a reference to the applicable Ringelmann opacity standard.

Section 303 - Continuous Emission Monitoring System (CEMS): The rule proposes to require that the owner or operator of an affected facility install, calibrate, maintain, and operate a Continuous Emission Monitoring System (CEMS) designed specifically to measure the facility's NO_X emissions (as currently required by 40 CFR

Part 60, Section 60.73(a)). The CEMS is to be designed and operated in compliance with the provisions of 40 CFR Part 60, Appendix B, Performance Specification 2, or a U.S. EPA and District approved alternative method. The CEMS is to be calibrated and checked using a NO_2 span gas with a value between 450 to 500 ppmv (as currently required by 40 CFR Part 60, Section 60.73(a)), or NO in the same range upon receiving U.S. EPA and District approval.

The use of an alternative span gas is necessary since Agrium has received EPA approval to use a NO span gas as part of the CEMS last modification. Since the NSPS specifically requires NO_2 as the system's span gas, the facility petitioned EPA for an alternate method (documented in an Agrium letter to EPA dated May 10, 2004). After several conversations with Steve Frye, EPA Region IX office, on April 11, 2005, Agrium received verbal approval for use of their proposed alternate method.

Section 304 - Source Testing: The proposed rule establishes that all affected facilities be source tested once every twelve (12) consecutive calendar months per the test methods of Section 601 (NO_X Emission Concentration) and 604 (Opacity).

Section 400 - Administrative Requirements

Section 401 - Compliance Schedule: This section of the rule specifies the proposed compliance date as July 1, 2009. For the existing facility in the District, there are no expected equipment additions or modifications as a result of the adoption of this rule.

Section 402 - Emission Control System and CEMs Operating and Maintenance Plan: The proposed rule requires that the owner or operator of an affected facility submit an Operational and Maintenance (O&M) Plan for the emission control device and the CEMS. The plan is to include procedures for collecting data and recording the required data to show compliance with the rule, as well as, procedures and schedules of preventative and corrective maintenance.

Section 500 - Reporting and Recordkeeping

Section 501 - Reporting: The records required by the rule will be maintained on-site for a period of five (5) years and made available to the APCO upon request.

Section 502 - Recordkeeping: This rule section requires that the owner or operator of an affected facility maintain the records pertaining to startup and shutdown duration, significant operating system parameters, elapsed time of operation, exhaust gas NO_X concentrations (in ppmv); and the exhaust gas NO_X emission rate in lb/ton HNO_3 per three (3) hour rolling average. This will aid the District in establishing compliance with the rule requirements.

Section 600 - Test Methods and Calculations

This section details the applicable test methods and formulas to be used to demonstrate compliance with the required source tests and operating parameters. The test methods referenced are standardized performance methods from the U.S. EPA concerning the

testing of NO_x and visible emissions, with the allowance for alternative methods approved by the U.S. E.P.A. and the District.

III. COMPARISON WITH OTHER APPLICABLE REGULATIONS AND REQUIREMENTS

California Health and Safety Code (CH&SC) Section 40727.2, requires Air Districts to perform a comparative alternative analysis of any new control standard. Specifically, the District is required to prepare a written analysis (typically in the form of a matrix) that identifies all existing federal air pollution control requirements, including, but not limited to emission control standards constituting Best Available Control Technology (BACT) that applies to the same equipment or source type as the rule or regulation proposed for adoption or modification by the District. In addition, the analysis shall identify any other District rule or regulation that applies to the same equipment or source type.

A. Reasonably Available Control Technology

In the case of the nitric acid production facilities, the source category is subject to the requirements of the EPA's New Source Performance Standards (NSPS) for Nitric Acid Plants contained in 40 CFR Part 60, Subpart G. The following analysis contained in Table 1 compares the specific elements of the proposed rule with the applicable elements of existing regulations.

TABLE 1. Comparison of Proposed Rule with Other Applicable Regulations and Requirements

Element for Comparison	District Rule 2.42	Federal Regulation: 40 CFR Part 60, Subpart G
Emission limits, associated averaging periods, and units of measure	NO_x Emission Limits:	
	▸ 3.0 lb NO_x/ton HNO_3 on a 3-hour rolling average	▸ 3.0 lb NO_x/ton HNO_3 on a 3-hour rolling average
	Acid Strength Basis:	
	▸ 100% strength	▸ 100% strength
	Visible emissions not to exceed:	
	▸ 10% opacity (equivalent to ½ of Ringelmann No. 1)	▸ 10% opacity
Operating parameters and work practice requirements	General Operating Requirements:	
	▸ Establishes compliance schedule for affected plants	▸ None
	▸ Submit for approval CEMS and Control System Operation and Maintenance Plan	

Element for Comparison	District Rule 2.42	Federal Regulation: 40 CFR Part 60, Subpart G
Monitoring, reporting, and recordkeeping requirements	NO_X Emission Monitoring Requirements:	
	▸ Install, calibrate, maintain, and operate a continuous monitoring system	▸ Install, calibrate, maintain, and operate a continuous monitoring system
	▸ Development and use of emission conversion factor	▸ Development and use of emission conversion factor
		▸ Reporting of excess emission in 3-hour average
Monitoring, reporting, and recordkeeping (cont.)	General Monitoring Requirements:	
	▸ Recording of daily production, operating hours	▸ Recording of daily production and operating hours
Emission testing requirements	Emission Testing Methods:	
	▸ NO_X - EPA Method 7 or approved alternative method	▸ NO_X - EPA Method 7 or approved alternative
	Emission Testing Frequency:	
	▸ Annual NO_X emission compliance testing	▸ Annual NO_X emission compliance testing
	▸ Annual opacity testing	

As previously discussed, only South Coast AQMD's Rule 1159 (Nitric Acid Units - Oxides of Nitrogen) specifically enforces the same NO_X emission limit but reduces the averaging period from three (3) hours to one (1) hour. In order to accommodate periods of emission upsets related to production startups and shutdowns, South Coast's Rule 429 (Start-up and Shutdown Exemption Provisions for Oxides of Nitrogen) exempt an affected production facility from the NO_X emission limitations of Rule 1159 during these periods. The startup and shutdown exemptions contained in South Coast's rule and the District's proposed rule are consistent with the exemptions contained in the provisions of 40 CFR Part 60, Subpart A (§60.8(c)). Therefore the proposed rule meets RACT, since its proposed emissions requirements are the same as the NSPS and the South Coast rule, and there are no other district rules with more stringent emission limits.

Operating Parameters and Work Practice Requirements

This rule meets RACT for operating parameters and work practice requirements since it contains requirements that are consistent with NSPS requirements. It should be noted that none of the local California Air District regulations contain any specific operating or work practice requirements.

Monitoring, Reporting and Recordkeeping Requirements

This rule meets RACT for monitoring, reporting, and recordkeeping requirements since it contains requirements that are consistent with NSPS requirements. Although several of

the local California Air District regulations require certain nitric acid plants to install and maintain CEMS that are compliant with the requirements of the NSPS, none are more stringent than the NSPS.

IV. IMPACTS OF THE PROPOSED RULE

Emissions Impacts

As previously discussed, there is currently a single source that will be subject to the requirements of the proposed rule. The controlled emissions from this source are limited to 40.08 tons of NOx per year. There are no additional emission reductions expected as a result from this rule since the source is already in compliance with section 300.

Cost Effectiveness

The CH&SC Section 40703, requires the District, in the process of the adoption of any regulation, to consider and make public its findings related to the cost effectiveness of a control measure. Cost effectiveness for rulemaking purposes is calculated by dividing the cost of air pollution controls required by the rule by the amount of air pollution reduced. Since there are no reductions expected from the adoption of this rule, and there are no additional air pollution controls expected, no cost effectiveness calculations are required.

Socioeconomic Impacts

Section 40728.5(a) of the CH&SC requires the District, in the process of the adoption of any rule or regulation, to consider the socioeconomic impact if air quality or emission limits may be significantly affected. However, districts with a population of less than 500,000 persons are exempt from the provisions of Section 40728.5(a). The District's population is estimated to be approximately 310,000 and well below the 500,000 person threshold. Therefore, a socioeconomic analysis for this rulemaking is not required.

Incremental Cost Effectiveness

Section 40920.6 of the CH&SC requires an assessment of the incremental cost-effectiveness for proposed regulations relative to ground level ozone (O_3), carbon monoxide (CO), sulfur oxides (SO_X), nitrogen oxides (NO_X), and their precursors. Incremental cost-effectiveness is defined as the difference in control costs divided by the difference in emission reductions between two potential control options that can achieve the same emission reduction goal of a regulation. There is no incremental cost effectiveness for this rule, since there are no expected reductions.

Impacts to the District

Due to the similarities between the District's proposed rule and New Source Performance Standard requirements for nitric acid production facilities (contained in 40 CFR Part 60, Subpart G), it is anticipated that the proposed rule will have little to no impact on staff workload at the District. It is expected that any additional work load can be absorbed within the District's Engineering Division.

V. ENVIRONMENTAL IMPACTS OF METHODS OF COMPLIANCE

California Public Resource Code Section 21159, requires that the District perform an environmental analysis of the reasonably foreseeable methods of compliance. The analysis must include the following information for the proposed adoption of District Rule 2.42:

1. An analysis of the reasonably foreseeable environmental impacts of the methods of compliance.

2. An analysis of the reasonably foreseeable mitigation measures.

3. An analysis of the reasonably foreseeable alternative means of compliance with the rule or regulation.

Table 2 lists all reasonably foreseeable compliance methods, the environmental impacts of those methods, and measures that could be used to mitigate the environmental impacts.

TABLE 2. Environmental Impacts, Mitigation Measures, and Alternatives

Compliance Methods	Reasonably Foreseeable Environmental Impacts	Reasonably Foreseeable Mitigation Measures
Non-Selective Catalytic Reduction	Air Quality Impacts: - Reduced NO_x emissions	No mitigation required
	Water Impacts: - No change in water impacts	
	Human Health Impacts: - Benefit to human health by reducing NO_x	
	Solid Waste Disposal Impacts: - No impact	

This analysis demonstrates the adoption of proposed Rule 2.42 will not have a significant effect on the environment or humans due to unusual circumstances. In addition, proposed Rule 2.42 is an action taken to protect the environment. Therefore, staff have determined that the project is categorically exempt from the requirements of the CEQA pursuant to Section 15308, Actions by Regulatory Agencies for Protection of the Environment. Staff have prepared a NOE to meet the CEQA Guidelines (Attachment B) for submittal to the County Clerk for Yolo County, and the Clerk of the Board of Supervisors for Solano County.

VI. REGULATORY FINDINGS

Section 40727(a) of the CH&SC requires that prior to adopting or amending a rule or regulation, an air district's board make findings of necessity, authority, clarity, consistency, nonduplication, and reference. The findings must be based on the following:

1. Information presented in the District's written analysis, prepared pursuant to CH&SC Section 40727.2;

2. Information contained in the rulemaking records pursuant to CH&SC Section 40728; and

3. Relevant information presented at the Board's hearing for adoption of the rule.

The required findings are:

Necessity: The rule adoption is required in order to satisfy the District's RACT SIP commitment to U.S. EPA and implement the 8-Hour Ozone National Ambient Air Quality Standards (70 Federal Register 71612, November 29, 2005).

Authority: The District is authorized to adopt rules and regulations by CH&SC, Sections 40001, 40702, 40716, 41010 and 41013. (CH&SC Section 40727 (b)(2)).

Clarity: District staff have reviewed the proposed rule and determined that it can be easily understood by the affected industry. In addition, the record contains no evidence that the persons directly affected by the rule cannot understand the rule. (CH&SC Section 40727(b)(3)).

Consistency: The proposed rule does not conflict with and is not contradictory to, existing statutes, court decisions, or state or federal regulations. (CH&SC Section 40727(b)(4)).

Non-Duplication: The proposed rule does not duplicate any state laws or regulations, regarding the attainment and maintenance of state and federal air quality limits. (CH&SC Section 40727(b)(5)).

Reference: The District must refer to any statute, court decision, or other provision of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule.

VII. PUBLIC COMMENTS AND STAFF RESPONSES

Staff held a public workshop on February 10, 2009, to discuss the proposed adoption of Rule 2.42. Notification was sent to the surrounding Air Districts, City Managers within the District, building/planning/community development departments within the District, all Chambers of Commerce within the District, all city and county libraries within the District, all Board members, and the one affected permitted source in this category. The workshop notice was published in the West Sacramento Press on February 4, 2009. A copy of the public workshop notice, the preliminary staff report, and preliminary rule language, were also posted on the District's webpage.

After making the necessary amendments to the rule based on the comments received during the public workshop noticing period, District staff released the amended rule and public hearing notice on February 19, 2009. As with the public workshop notice, the public hearing notice was sent to the surrounding Air Districts, City Managers within the District,

building/planning/community development departments within the District, all Chambers of Commerce within the District, all city and county libraries within the District, all Board members, and the one affected permitted source in this category. The hearing notice was published in the West Sacramento Press on February 25, 2009. A copy of the public hearing notice, the proposed staff report, and proposed rule language, were also posted on the District's webpage.

The comment period ended March 23, however the District received additional EPA comments on April 3 and could not resolve the issues by the Board meeting on April 8. Staff was confident that the EPA rule reviewer and the District would be able to agree on rule language and therefore requested the Board continue the item until the May Board meeting.

A. Public Workshop - February 10, 2009

The public workshop was attended by two (2) representatives from Agrium U.S., Inc. The verbal comments received from Agrium during the public workshop and the written comments that were submitted (received February 12, 2009) are very similar. District Staff will attempt to paraphrase the comments that were received both during the workshop and in the comment letter. The comment letter can be seen in Attachment D of this staff report.

Comment 1: Section 205 of the proposed rule requires that the following operating parameters be tracked: hourly nitric acid production rate, exhaust gas flow rates, exhaust gas temperature, and NO_X emission rates. However, the Agrium facility is only able to track daily nitric acid production, acid strength, NO_X emission rates, and hours of operation. The exhaust stack temperature, flow rate, and hourly nitric acid production rates are only tracked during the facility's annual Relative Accuracy Test Audits (RATA).

Response 1: The District understands that the facility is able to track only certain parameters of the nitric acid production process. Since the District requires that affected facilities establish and use a NO_X emission conversion factor in order to demonstrate compliance with the emission limits of the rule, Section 205 will be revised to change the definition of Operating System Parameters to read, "daily nitric acid production rate, average daily nitric acid strength, NO_X emission rates, and hours of operation."

Comment 2: Agrium requests the inclusion of an exemption consistent with the startup, shutdown, and malfunction exemption contained in 40 CFR Part 60, Subpart A (§60.8). This federal exemption allows any emissions relating to a startup, malfunction, and/or shutdown to be excluded from the 3-hour NO_X emission average limit contained in 40 CFR Part 60, Subpart G.

Response 2: The proposed rule has been amended to include Section 110 - Exemptions in order to be consistent with the startup, malfunction, and shutdown requirements of Subpart A specifically pertaining to the mass emission limits of the facility. However, the District has also included language that requires an affected facility to include the emissions from any periods of startups, malfunctions, or shutdowns when determining compliance with the facility's

daily, quarterly, and yearly mass emissions as listed on the applicable operating permits. Furthermore, the District has included the definition of "Startup Periods", "Malfunction", and "Shutdown Periods" in Section 200 of the rule.

Comment 3: Agrium requests the inclusion of an exemption consistent with the startup, shutdown, and malfunction exemption contained in 40 CFR Part 60, Subpart A (§60.11(c)) specifically pertaining to the visible emission limits of the facility. This federal exemption allows any emissions relating to a startup, malfunction, and/or shutdown to be excluded from the 10% opacity limit contained in 40 CFR Part 60, Subpart G.

Response 3: For consistency with the federal exemptions, Section 110 - Exemptions, will also allows any visible emission during periods of startup, malfunction, and/or shutdown to be excluded from the requirements of the rule.

Comment 4: Agrium requests that the term "regulations" be changed to "methods" in Section 303, and that for both Sections 303.1 and 303.2, that "U.S. Environmental Protection Agency" and "U.S. EPA" be changed to "the District".

Response 4: The District has replaced the term "alternative regulations" to "alternative methods." For consistency with the language used in Sections 601 and 604, the phrase "that are acceptable to the U.S. EPA" has been amended to "approved by the District."

Comment 5: Agrium requests that the proposed rule use the same language as their current operating permit which requires source testing be completed once every four (4) calendar quarters instead of once every twelve (12) continuous calendar months.

Response 5: The District does not agree, the proposed language is consistent with the testing language used in other District rules. The section language will not be changed.

Comment 6: Section 402 requires that Agrium submit an Operation and Maintenance (O&M) specific to the facility's control device and emission monitors. During the public workshop, Agrium requested clarification on the level of specificity required from such a plan (i.e. a highly detailed plan that includes Standard Operating Procedures (SOP's) for the operation of the production plant). In their written comments, Agrium states that they understand the level of detail required from the O&M Plan.

Response 6: The District agrees with the comment, therefore no language change is required.

Comment 7: Agrium indicated that the use of "Pacific Standard Time" in Section 502.1(a) would eliminate the need to adjust the CEMS and other monitoring systems for Daylight Savings Time. However, Agrium was concerned that it may

cause some confusion when operators initially report an upset/breakdown for the facility.

Response 7: The District agrees that this language is not necessary for rule clarity and will delete the language in question form this rule. The District will allow an affected facility to record and report data in Pacific Standard Time if contained in the required O&M Plan.

Comment 8: Section 502.1(c) requires that Agrium record on a daily basis the type and quantity of fuel and raw material used on the process. However, Agrium has explained that the specific amounts of natural gas and ammonia can not be tracked by the facility given the constraints of their current equipment and process flow, and are not necessary in the determining compliance with the permitted mass emission limits of their permit. Agrium has requested that these items be removed from the requirements of Section 502.1.

Response 8: The District agrees and has made the change.

Comment 9: Agrium requests that Section 502.3 include the a specific frequency for the CEM's sampling and analyzing of the stack gas. According to Agrium's comment letter, the CEM's currently complies with the requirements of 40 CFR Part 60.13(c) which includes a frequency of sampling, analyzing, and recording once every 15 minutes.

Response 9: The District will not amend the section to include a sampling and recording frequency. Compliance with the applicable CFR requirements is acceptable.

Comment 10: Agrium requests that Section 603 specify that the source test data used to determine compliance be the most recent source test report submitted to, and approved by, the District.

Response 10: The District agrees and has made the change.

Comment 11: Agrium has requested that Section 604 be amended to include the use of EPA Method 22 as an approved visible emission evaluation method.

Comment 11: The District does not agree. The rule language as proposed would allow the use of EPA Method 22 if the District approves its use. The section language will not be changed.

B. Public Hearing Notice Period

During the public hearing noticing period, the District received two sets of written comments and one set of follow-up verbal comments. Specifically, Agrium's written comment letter was received on March 4, 2009, and U.S. EPA's written comments were received electronically on February 26, 2009. U.S. EPA's follow-up verbal comments were received on March 16, 2009. District Staff will attempt to paraphrase the comments received during this public hearing notice period. Copies of the comment letters are contained in Attachment D of this staff report.

Comment 1: Agrium's letter requests that the District reexamine the amount of time allowed for startup periods and that the limit be increased beyond the proposed one (1) hour. Agrium states that neither the NSPS, General Provisions of the CFR, or EPA's applicable compliance determination restrict the startup period duration for nitric acid production facilities. Agrium states that the one (1) hour limit is to restrictive, and that although they would rather the rule not have a duration restriction, a three (3) hour limit would be more appropriate.

Response 1: The District has reviewed the applicable documents and discussed the startup, malfunction, shutdown section requirements with EPA Rule Reviewer Alfred Petersen (see comment 4 below).

In response to the comment, the District has revised the "Startup Period" and "Shutdown Period" definitions of the Rule. The "Startup Period" definition has been revised to allow a three (3) hour window for startup emissions. The "Shutdown Period" definition has been amended to remove language stating that this period is to include the time that it takes the acid production unit "to cool from its normal operating temperature range to a cold or ambient temperature." Since portions of this process operate at very high temperatures (i.e. above 1000 °F), the time necessary for portions of the equipment to cool to ambient temperature far exceeds the amount of time in which any shutdown related emissions are being released. As such, the "Shutdown Period" definition has been revised to read, "the period of time after feedstock is no longer introduced in a nitric acid production unit and ends when emissions cease. The shutdown period is not to include the time required to cool down the control equipment and shall not exceed three (3) hours."

Comment 2: EPA states in their letter that the NO_X emission limitation as "lb NO_X/ton HNO_3" in paragraphs 203, 204 and 301 seems ambiguous, because x may vary. EPA recommended that the NO_X portion of the limit and the definition of NO_X emissions be expressed as NO_2, as in 40 CFR 60.72(a)(1).

Response 2: The District agrees and has made the change.

Comment 3: EPA suggests in their letter that the RACT standards may be more stringent than the NO_X emission limit stated in the proposed rule. They ask that the District consider whether a more stringent requirements is appropriate that is based on the EPA's 1991 ACT document (pages 5-17) which suggests that similar facilities almost 20 years ago should have emitted 0.6 - 1.5 lb/ton.

Response 3: The District followed up the comment with a call to Alfred Petersen on 3/16/2009 to confirm that the comment was suggestive and not a directive. It is the District position that due to the limited number of production facilities used in calculating the average NO_X emission factor stated in the ACT document, the factor does not reflect RACT for this facility type. Furthermore, The District considers the ACT limits to be in line with BACT or LEAR standards and not necessarily RACT. Accordingly, the District has

revised the RACT determination section of this Staff Report in order to better support the RACT standard of 3.0 lb NO_X per ton of HNO_3 produced over a three (3) hour rolling average.

Comment 4: As part of the telephone discussion with Alfred Petersen, it was stated that the startup, malfunction, shutdown exemption should include language requiring an affected facility minimize the emissions during these periods, and remain below their permitted daily emission limits. Alfred commented that by exempting both the NO_X and opacity emissions, EPA would prefer that the rule containing an explicit NOx and PM emission limit as opposed to an implicit reference to an affected facility's operating permit.

Response 4: The District agrees and Section 110 (Exemption - Equipment Startup, Malfunction, and Shutdown) has been amended to require that the provisions of Section 301 and 302 not apply during periods of equipment startup, malfunction, or shutdown, provided that emissions during these periods have been minimized as much as technologically feasible. This amended requirement is now consistent with the General Provision requirements of the CFR and EPA's compliance determination.

The exemption will no longer explicitly state that the mass emissions from any startups, malfunctions, and shutdowns be included in the compliance determination with a facility's mass emission limits contained in the affected operating permit(s). However, it is still the District's intent to enforce the mass emission limits including those emissions that occur during start-up, shutdown, and malfunction. In the case of Agrium's existing local and federal operating permits, the District will add a condition during their renewal to ensure that the startup, malfunction, and shutdown emissions be included in the appropriate mass emission limit compliance determinations.

Comment 5: After reviewing the revised proposed rule, Alfred Petersen said that EPA was opposed to the inclusion of an excess emission exemption during periods of malfunction. Alfred explained that EPA does not want this type of provisions in a SIP approved rule and that the malfunction definition and references should be removed. He also explained that the current exemption did not meet all of the requirements of EPA's "Policy on Excess Emissions During Malfunctions, Startup and Shutdown." Therefore, EPA would not adopt the rule into the SIP if the exemption section was not amended. EPA Rule Making Office Chief Andrew Steckel provided further guidance on the criteria that would demonstrate that the duration and frequency of startup and/or shutdown periods have been minimized to the maximum extent practicable.

Response 5: Staff has reviewed the EPA's excess emission policy and revised Sections 110 and 200 of the proposed rule to remove all "malfunction period" references. Staff has also revised Section 110 to include the language necessary to satisfy the requirements of EPA's excess emission policy. The amended section requires that the excess emissions from startup and/or shutdown periods be exempted from the standards of the rule provided that these emissions have been minimized as much as technologically feasible,

the duration and frequency of these periods be minimized to the maximum extent practicable.

C. Additional Comments Received after the Noticing Period

After the noticing period was over, the District received further comments from EPA's rule reviewer. These comments could not be addressed by the time the District was to present the rule to the Board, therefore the rule was carried over to the May meeting. The April 16, 2009 EPA comments and District responses follow:

Comment 1. Please revise section 110 and revise or delete section 202 to remove the automatic exemption for violations due to malfunction, which is inconsistent with the Clean Air Act as discussed in EPA's 1999 Excess Emissions Policy. Excess emissions due to malfunctions are to be treated as violations of the underlying standard, although agencies have discretion in pursueing enforcement.

Response 1. As previously mentioned, the District agrees and had already committed to make that change.

Comment 2. Please revise sections 110, 207, and 208, and the District staff report where relevant, to ensure consistency with the Clean Air Act as detailed in Section III of EPA's 1999 Excess Emission Policy. For example, language should be incorporated in the rule to specify that the frequency and duration of start-up and shut-down periods must be minimized.

Response 2. The District was unclear as to what language EPA would consider approveable. It is our belief that upon adding the requirement to minimize the duration, frequency, and associated emissions as much as practicable, that the rule language is now consistent with EPA's 1999 Excess Emissions Policy.

Comment 3. Please revise sections 303.1, 303.2, 601, 604, and any other similar instances of executive officer discretion to ensure consistency with long-standing national policy regarding Clean Air Act sections 110(a) and 110(i).

Response 3. The District agrees to add U.S.EPA to the approval language in those sections.

Comment 4. Please remove reference to California Health and Safety 42400 in section 305, which could be interpreted to limit enforcement authority under federal law.

Response 4. The District agrees and has removed that citation from the section.

VIII. REFERENCES

1. Yolo-Solano Air Quality Management District, Reasonably Achievable Control Technology State Implementation Plan, September 13, 2006.

2. United States Environmental Protection Agency, 40 Code of Federal Regulations Part 60, Subpart G - Nitric Acid Plants, 54 Federal Register 6666, February 14, 1989.

3. United States Environmental Protection Agency, AP-42 Compilation of Air Pollutant Emission Factors, Volume I, Fifth Edition, Chapter 8.8 Nitric Acid, February 1998.

4. United States Environmental Protection Agency, Alternative Control Techniques Document - Nitric and Adipic Acid Manufacturing Plants, December 1991.

5. United States Environmental Protection Agency, Policy on Excess Emissions Duing Malfunctions, Startup and Shutdown, August 11, 1999.

ATTACHMENT A

PROPOSED RULE 2.42, NITRIC ACID PRODUCTION

RULE 2.42 NITRIC ACID PRODUCTION

ADOPTED May 13, 2009

INDEX

100 GENERAL

101 **PURPOSE:** The purpose of this rule is to limit nitrogen oxide (NOx) and visible emissions from nitric acid production facilities.

102 **APPLICABILITY:** The provisions of this rule are applicable to weak nitric acid production facilities.

103 **SEVERABILITY:** If any provision, clause, sentence, paragraph, section or part of this rule for any reason is judged to be unconstitutional or invalid, such judgement shall not affect or invalidate the remainder of the rule.

104 **VIOLATIONS:** Failure to comply with any provision of this Rule shall constitute a violation of this rule.

110 **EXEMPTION - EQUIPMENT STARTUP AND SHUTDOWN:** The provisions of Section 301 and 302 shall not apply to any nitric acid production facilities during periods of equipment startup or shutdown, provided that the frequency and duration of these periods and the associated emissions are minimized to the maximum extent practicable.

200 DEFINITIONS

201 **EMISSION CONTROL SYSTEM:** The control device(s) and continuous emission monitoring system used to reduce and monitor NOx emission concentrations created during the production of weak nitric acid.

202 **NITRIC ACID PRODUCTION FACILITY:** An operation that manufactures weak nitric acid either by the pressure or atmospheric pressure process.

203 **NITROGEN OXIDE (NOx) EMISSIONS:** The sum of nitric oxide (NO) and nitrogen dioxide (NO_2) in the exhaust gas stream, expressed as NO_2.

204 **NOx COMPLIANCE LIMIT:** Allowable NOx emissions expressed in pounds of nitrogen dioxide (NO_2) emitted per ton of nitric acid produced (lb NOx/ton HNO_3), where the production is expressed as 100% nitric acid by mass.

205 **OPERATING SYSTEM PARAMETERS:** Operating parameters that the Air Pollution Control Officer (APCO) has deemed necessary for analysis when determining compliance, including, but not limited to, daily nitric acid production rate, average daily nitric acid strength, NOx emission rates, and hours of operation.

206 **SHUTDOWN PERIOD:** The period of time after feedstock is no longer introduced in a nitric acid production unit. The shutdown period is not to include the time required to cool down the control equipment and shall not exceed three (3) hours.

207 **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 startup period is not to include the time required to preheat the control equipment and shall not exceed three (3) hours.

208 **WEAK NITRIC ACID:** Nitric acid with a strength between 30% and 70% (by mass).

300 STANDARDS

301 **NOx EMISSION LIMITATION:** The owner or operator of an affected facility shall not operate such equipment which results in measured NOx (expressed as NO2) emissions exceeding 3.0 lb/ton HNO_3 produced (being expressed as 100% nitric acid by mass) averaged over a three (3) hour rolling period.

302 **OPACITY LIMITATIONS:** 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:

302.1 Half as dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or

302.2 Of such opacity as to obscure an observer's view to a degree equal to or greater than smoke as described in subsection 302.1 or 10% opacity.

303 **CONTINUOUS EMISSION MONITORING SYSTEM (CEMS):** The owner or operator of an affected facility shall install, calibrate, maintain, and operate a Continuous Emission Monitoring System (CEMS) for measuring NOx emission concentrations.

303.1 The CEMS shall comply with the requirements specified in 40 Code of Federal Regulations Part 60, Appendix B, Specification 2 or other alternative methods approved by the U.S. E.P.A. and the District.

303.2 The CEMS shall be calibrated and checked using a NO_2 span gas with a value between 450 and 500 ppmv, or other alternative methods approved by the U.S. E.P.A. and the District.

304 **SOURCE TESTING:** All facilities subject to the provisions of this Rule shall perform a source test to verify compliance with the requirements of Section 301 and 302 at least once every twelve (12) continuous calendar months, in accordance with a District-approved protocol and the test methods listed in Section 600 of this Rule.

400 ADMINISTRATIVE REQUIREMENTS

401 **COMPLIANCE SCHEDULE:** The owner or operator of an affected facility shall demonstrate full compliance with all provisions by July 1, 2009.

402 **EMISSION CONTROL SYSTEM AND CEMS OPERATING AND MAINTENANCE PLAN:** The owner or operator of an affected facility shall submit an Operations and Maintenance (O&M) Plan for the emission control device and the CEMS to the APCO for approval. The plan shall include:

402.1 The procedures for collecting and recording required data and other information in a form approved by the APCO.

402.2 The procedures and schedules for preventive and corrective maintenance performed for the purpose of maintaining both the emission control device and the CEMS in proper operating condition.

500 REPORTING AND RECORDKEEPING

501 **REPORTING:** All records required by this Rule shall be maintained on-site for a period of five (5) years and made available to the APCO upon request.

502 **RECORDKEEPING:** The owner or operator of an affected facility shall maintain an operating log for the facility that includes, on a daily basis:

502.1 The actual startup and shutdown time;

502.2. Total hours of operation, amount of nitric acid produced (expressed as 100% acid strength);

502.3 Operating system parameters;

502.4 The exhaust gas NOx concentrations in parts per million volume (ppmv) on a dry basis; and

502.5 The exhaust gas NOx emission rate in lb/ton HNO_3 per three (3) hour rolling average.

600 TEST METHODS AND CALCULATIONS:

601 **NOx EMISSION CONCENTRATION:** NOx emission concentrations shall be determined in accordance with U.S. EPA Method 7, or alternative methods approved by the U.S. E.P.A. and the District.

602 **NOx EMISSION RATE:** The NOx emission rate used to demonstrate compliance with the NOx compliance limit of this Rule shall be calculated using the equation contained in 40 CFR Part 60.74(b)(1).

603 **NOx EMISSION CONVERSION FACTOR:** The owner or operator of an affected facility shall calculate an emission conversion factor for the purpose of converting the NOx CEMS data (in ppmv) into the units of the applicable NOx compliance limit (in lb/ton) using the data from the most recent source test submitted to, and approved by, the District. The emission conversion factor shall:

603.1 Be calculated using the CEMS and source test data pertaining to the same operating time frame.

603.2 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.

603.3 Be reestablished during any source test event performed pursuant to the requirements of Section 304 of this Rule.

604 **OPACITY:** Visible emission evaluations shall be determined in accordance with U.S. EPA Method 9, or alternative methods approved by the U.S. E.P.A. and the District.

Notice of Exemption

To: ☐ Office of Planning and Research
1400 Tenth Street., Room 121
Sacramento, CA 95814

☐ County Clerk
County of Yolo
625 Court Street Room B01
Woodland, CA 95695

☒ Clerk of the Board of Supervisors
Solano County
675 Texas Street, Suite 6500
Fairfield, CA 94533

From: Yolo-Solano Air Quality Management District
1947 Galileo Court, Suite 103
Davis, CA 95618

Project Title: Adoption of Rule 2.42 - Nitric Acid Production

Project Location: Yolo-Solano Air Quality Management District

Project description: Rule 2.42 will limit emissions of nitrogen oxides (NO_X) from nitric acid production facilities through the requirement of enhanced emissions monitoring and yearly emissions testing.

Name of Public Agency Approving Project: Yolo-Solano Air Quality Management District

Name of Person or Agency Carrying Out Project: Yolo-Solano Air Quality Management District

Exempt Status:

☐ Ministerial
☐ Emergency Project
☒ Categorical Exemption (CEQA Guidelines Section 15308, Action by Regulatory Agency for Protection of the Environment)
☐ Statutory Exemption

Reason why project is exempt: The adoption of Rule 2.42 is an action taken to protect the environment and is therefore exempt from CEQA because it constitutes a Class 8 categorical exemption pursuant to CEQA Guidelines 15308.

Lead Agency Contact Person: Mat Ehrhardt, P.E., Executive Director/APCO
Telephone Number: (530) 757-3650

Signature: _____ **Date:** _____ **Title:** _____

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To: ☐ Office of Planning and Research
1400 Tenth Street., Room 121
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Lead Agency Contact Person: Mat Ehrhardt, P.E., Executive Director/APCO
Telephone Number: (530) 757-3650

Signature: _____ **Date:** _____ **Title:** _____

ATTACHMENT B

NOTICE OF EXEMPTION FROM CEQA GUIDELINES

ATTACHMENT C

RESOLUTION NO. 09-03

RESOLUTION NO. 09-03

RESOLUTION ADOPTING YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT RULE 2.42, NITRIC ACID PRODUCTION

WHEREAS, California Health and Safety Code section 40702 provides that an air quality management district shall adopt rules and regulations, and do such acts as may be necessary or proper to execute the powers and duties granted to, and imposed upon, the district by Division 26 of the Health and Safety Code; and

WHEREAS, Health and Safety Code section 40727 provides that before adopting, amending, or repealing a rule or regulation, a district board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference, based upon information developed pursuant to section 40727.2, information in the rulemaking record maintained pursuant to section 40728, and relevant information presented at the public hearing required by section 40725; and

WHEREAS, section 15308 of the California Environmental Quality Act (CEQA) Guidelines provides that actions taken by regulatory agencies as authorized by state law to assure the maintenance, restoration, or enhancement of the environment where the regulatory process involves procedures for protection of the environment, are categorically exempt from CEQA review (Class 8 Categorical Exemption); and

WHEREAS, California Health and Safety Code sections 39002 and 40000 provides that an air quality management district shall have the responsibility to control air pollution from all sources other than vehicular sources; and

WHEREAS, the purpose of adopting District Rule 2.42 is to limit emissions of oxides of nitrogen (NO_X) from nitric acid production facilities through the requirement of enhanced emissions monitoring and yearly emissions testing.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Yolo-Solano Air Quality Management District hereby finds, authorizes, directs and declares as follows:

1. The Board of Directors has considered and hereby adopts by reference the staff report prepared in this matter.

2. The Board of Directors makes the following findings pursuant to Health and Safety Code section 40727:

a. Necessity: Information in the District's rulemaking record maintained pursuant to Health and Safety Code section 40728 demonstrates a need for adopting Rule 2.42;
b. Authority: Health and Safety Code section 40702 permits the District to adopt Rule 2.42;
c. Clarity: District Rule 2.42, as proposed is written so that its meaning can be easily understood by the persons directly affected by it;
d. Consistency: District Rule 2.42, as proposed is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations;
e. Non-duplication: District Rule 2.42, as proposed does not impose the same requirements as an existing state or federal regulation;
f. Reference: District Rule 2.42 is consistent with provisions of the Clean Air Act.

3. The Board of Directors finds that the District has complied with the procedural requirements set forth in Chapters 6 and 6.5 of Part 3 of Division 26 of the Health and Safety Code.

4. The Board of Directors finds that adopting District Rule 2.42 is an action taken by a regulatory agency as authorized by state law to assure the maintenance, restoration, or enhancement of the environment where the regulatory process involves procedures for protection of the environment, and is therefore categorically exempt from CEQA review as a Class 8 Categorical Exemption.

5. The Board of Directors hereby adopts District Rule 2.42, Nitric Acid Production as set forth in Exhibit 1 (Attachment A of the Staff Report), which is attached and incorporated by reference. The adopted rule is effective May 13, 2009.

PASSED AND ADOPTED by the Board of Directors of the Yolo-Solano Air Quality Management District this 13th day of May, 2009, by the following vote:

Ayes:

Noes:

Absent:

Abstain:

_____

Matt Rexroad, Chair
Board of Directors
Yolo-Solano Air Quality Management District

Attest:

Kay Mahorney, Clerk
Board of Directors

Approved as to Form:

Hope Welton, District Counsel

ATTACHMENT D

WRITTEN COMMENTS RECEIVED

John Killey, R.E.A.
Environmental Specialist
Agrium U.S.A. Inc.
West Sacramento Nitrogen Operations
3961 Channel Drive
West Sacramento, CA 95691
Telephone 916.375.6160
Facsimile 916.375.6109
Mobile 916.798.5384

Agrium

February 13, 2009
ENV: 09-013
811:10.4.5.1

Yolo-Solano Air Quality Management District
1947 Galileo Ct., Suite 103
Davis, CA 95618

Attention: Mr. René Toledo
Associate Air Quality Engineer

RE: Comments on Public Workshop; Draft District Rule 2.42 Weak Nitric Acid Production.

Dear Mr. Toledo:

Agrium U.S. Inc. owns and operates the Sacramento Nitrogen Operations facility at 3961 Channel Drive in West Sacramento, Yolo County. We operate a nitric acid plant under the authority of the Yolo-Solano Air Quality Management District (the District) Permit to Operate P-37-82(a2) and Title V Operating Permit F-00470-6. A Public Workshop on the above proposed rule was held on February 10, 2009 in the District's Boardroom. It was attended by yourself and Susan McLaughlin from the District, and by my myself and Ted Hartman from Agrium. This letter serves to provide you with our comments on the proposed rule arising from the workshop. Sections below correspond to those in the proposed version provided at the workshop.

205 OPERATING SYSTEM PARAMETERS

Nitric acid production rate (reported on a daily not hourly basis), exhaust gas flow rates, exhaust gas temperature, and NOx emission rates are determined during the annual Relative Accuracy Test Audit (RATA). Daily nitric acid production is calculated throughout the year, however it is not feasible to determine any of these other parameters except during a RATA. Currently, daily production rate and hours of operation are recorded as required in the existing operating permit. NOx emission rate as lb/ton of acid produced (100%) is calculated using an emission factor developed during the annual RATA. The emission factor is a conversion ratio expressed as lb/ton per ppm. Daily NOx emissions are calculated using this factor, daily average NOx concentration as ppm and daily nitric acid production as tons 100%.

301 NOx EMISSION LIMITATION

We request this be consistent with the NSPS subpart G requirement of 3-hour average to exclude periods of Startup/Shutdown/Malfunction, 40CFR Subpart A § 60.8(c). The attached EPA determination memo specifies that emissions during SSM events are not included in the 3-hour average calculation. In addition, if acid is not being produced during Startup, Shutdown, Malfunction the lb/ton limit cannot apply because of the lack of acid production and the conversion factor/ratio that is

used to calculate lb/ton would be in error because it is developed while acid is being produced. Emissions during periods of Startup/Shutdown/Malfunction are captured/included in the Operating permit daily emissions record /daily NOx limit in which case we calculate them from the average NOx concentration, operating time and a different factor developed during the annual RATA. In these cases we report the calculation method in the monthly report to the District.

302 OPACITY LIMITATIONS

We request this be consistent with the NSPS subpart G exclusion periods of Startup/Shutdown/Malfunction, 40CFR Subpart A § 60.11(c). However, Agrium works diligently and swiftly to control and eliminate any visible emissions which might occur during periods of startup, shutdown or malfunction per 40 CFR Subpart A § 60.11(d).

303 CONTINUOUS EMISSION MONITORING SYSTEM (CEMS)

In sub-rule 301.1 we suggest "regulations" be changed to "methods" consistent with 301.2.

In both sub-rules 303.1 and 30.2 we suggest that "U.S. Environmental Protection Agency" and "U.S. EPA" be changed to "the District".

304 SOURCE TESTING

We request that the proposed rule use the same language as the current Permit to require testing once every 4 calendar quarters instead of once every 12 continuous calendar months.

402 EMISSION CONTROL SYSTEM AND CEMS OPERATING AND MAINTENACE PLAN

We understand that you require a straightforward (not detailed) plan to be submitted. This would then allow us to make periodic detailed improvements without the necessity and delay of first securing District approval. We also understand that you will work with us to ensure our submission is satisfactory. We are of course willing to show you our detailed current procedures at any time during a site inspection.

502.1a PACIFIC STANDARD TIME

We welcome this consistency. However, it does have some "downstream" ramifications. Our operators for instance may make verbal reports of breakdowns using Daylight Savings Time. We would then correct this in follow-up reporting. Some understanding from the District would be appreciated.

502.1c Type and quantity of fuel and raw materials used

Currently, we record on a daily basis the amount of natural gas used in the nitric acid plant. However, this includes that used by the gas fired boiler [P-36-82(a)], the meter of which is read weekly and some ancillary space heating which is not separately accounted for. The raw material used is ammonia. The flow rate is tracked but is not totalized and instrumentation is not certified. To do this would require considerable engineering effort and cost. Also, ammonia and natural gas are not identified as operating system parameters that are necessary for determining compliance. We request that entire sub-rule be removed as unnecessary.

502.2 Operating system parameters

See comments under §205 above.

502.3 The exhaust gas NOx concentration in ppmv

This requirement needs definition on the frequency of measuring the exhaust gas NOx concentration. Currently, the CEM is required to sample and analyze the stack gas per 40CFR 60.13(c) which includes a frequency of sampling, analyzing, and recording once every 15 minutes.

502.4 The exhaust gas NOx emission rate .....

See comments under 301 above.

603 NOx EMISSION CONVERSION FACTOR

We suggest adding wording that source test data used in the three sub-sections be the most recent reported and approved by the District.

604 OPACITY

"Method 9 or alternative methods approved by the District." We mention here that we have requested that Method 22 be approved as in our Title V application dated November 11, 2007.

Sincerely,

John Killey, R.E.A.
Environmental Specialist

cc. Ted Hartman, Agrium
Bobby Franklin, Agrium

Attachment: EPA Determination, 0200004

John Killey, R.E.A.
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West Sacramento Nitrogen Operations
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Mobile 916.798.5384

Agrium

March 4, 2009
ENV: 09-019
811.10.4.5.1

Yolo-Solano Air Quality Management District
1947 Galileo Ct., Suite 103
Davis, CA 95618

Attention: Mr. René Toledo
Associate Air Quality Engineer

RE: Comments on Revised Rule 2.42 Nitric Acid Production.

Dear Mr. Toledo:

Agrium U.S. Inc. owns and operates the Sacramento Nitrogen Operations facility at 3961 Channel Drive in West Sacramento, Yolo County. We operate a nitric acid plant under the authority of the Yolo-Solano Air Quality Management District (the District) Permit to Operate P-37-82(a2) and Title V Operating Permit F-00470-6. A Public Workshop on the above proposed rule was held on February 10, 2009 in the District's Boardroom. Subsequently, you provide me with a revised proposed Rule (dated February 19, 2009) Proposed Staff Report (same date) and a partial set of Attachments (also same date).

While we appreciate your adding an exemption for Startup, Malfunction and Shutdown we believe it is necessary to comment on the newly introduced section defining startup. Consistent with my letter dated 7February 13 (ENV 09-013) the section below corresponds to that in the proposed version described above.

207 STARTUP PERIOD

Agrium requests that the proposed maximum startup period be increased.

In the times immediately prior to and following a startup operators are actively engaged on monitoring and controlling the numerous variables of the Plant. Their first priority, after safety, is emissions control. This relates to both NOx and then carbon monoxide (CO). The most urgent parameter addressed is visible emissions from the stack and thereafter the NOx three-hour rolling average. This is followed by addressing the daily total CO and NOx emissions. As you are aware, to an extent, one pollutant is reduced somewhat at the expense of the other. Overall, we frequently have to meet our limits by also reducing the nitric acid production; operating at reduced rates with the Process Air Compressor rotating at less than high speed stop (it's maximum design rate). This often lasts for a full day, sometimes longer, and can feasibly be for two days. Operationally, we consider the startup period to be over when the waste heat boilers are lined out and we are making all the called for products, AN and/or UAN-32 which usually takes in the order of six hours.

Note that our operators are instructed that if it appears we are going to exceed limits, they are to shut the Plant down.

We draw your attention to two points in the US-EPA Determination, 0200004 which was attached to our previous letter and re-attached for convenience:

1) It states in Answer 5 (page 2) that "Although Subpart G does not specify a limit on the amount of time that a facility is exempt from the nitrogen oxides emission limit during startup ….. " and
2) In the second paragraph on page 4 "Although some NSPS specify a limit on the time that a source can be exempt from an emission standard during startup, shutdown, or malfunction, Subpart G does not contain such a limitation." And "Since Subpart G does not contain a similar limitation, [for Large Municipal Waste Combustors] it could be argued that there is no restriction on the duration of exempted excess emissions during the startup of Subpart G sources."

We respectfully submit that if another district does have a time limit on duration of a startup, it is not pertinent to Agrium's facility. The limit might have been written at some time for a facility with different equipment and circumstances to ours; and we note that some districts with nitric acid rules do not even have a nitric acid plant in their jurisdictions.

We request that in line with Subpart G and the US-EPA Determination, there is no defined limit for startups during which the exemption applies to the 3.0 lb/ton nitric acid produced. However, if your District does mandate such a definition, we request that maximum period it be three hours.

Nonetheless, again we wish to assure you that Agrium works diligently and swiftly to control all emissions during periods of startup, shutdown or malfunction and to eliminate any visible emissions which might occur.

Sincerely,

John Killey, R.E.A.
Environmental Specialist

cc. Ted Hartman, Agrium
Bobby Franklin, Agrium

Attachment: EPA Determination, 0200004

adi.txt

Control Number: 0200004

Category: NSPS
Region: Region 4
Date: 11/27/2001
Title: Monitoring and Excess Emission Related Issues
Recipient: Gerald Kissel
Author: R. Douglas Neeley
Comments:

Subparts:	Part 60	A	General Provisions
	Part 60	G	Nitric Acid Plants

References:
60.11(d)
60.11(g)
60.45b(a)
60.46b(a)
60.58b(a)(1)
60.7(c)
60.72(a)(1)
60.73(c)
60.8(c)

Abstract:

Q1: What is the definition of excess emissions for reporting and compliance purposes under 40 CFR Part 60, Subpart G?

A1: Excess emissions under Subpart G are defined as any three-hour period during which the average nitrogen oxides emission rate exceeds the 1.5 kilogram per metric ton (3.0 pound per ton) emission limit in 40 CFR 60.72(a)(1).

Q2: Do excess emissions constitute a violation of the standard in Subpart G?

A2: Under the "any credible evidence" provisions in 40 CFR 60.11(g), the continuous emission monitoring (CEMS) data used for excess emission reporting can be used to cite violations for any three-hour period(s) during which the CEMS data indicate that emissions would have been in excess of the applicable standard had a performance test been conducted.

Q3: If excess emissions do constitute a violation of the standard in Subpart G, how are the averaging time and the duration of the violation determined?

A3: Since the emission limit has an averaging time of three hours, CEMS data must be averaged over a three-hour period in order to determine whether the nitrogen oxides emission rate has exceeded the applicable limit. A single three-hour period during which the average emission rate exceeds the limit would be reported as three hours of excess emissions. It there are consecutive, overlapping three hour periods during which the average nitrogen oxides emission rate exceeds the applicable limit, the duration of the excess emission period should be determined based upon the number of hours between the beginning and the end of the exceedance period.

Q4: Does 40 CFR 60.8(c) allow violations during nitric acid plant startups, and, if so, are facilities

exempt from enforcement for violations of the standard during startup?

A4: Since Subpart G does not include language specifically indicating that the nitrogen oxides limit applies at all times, facilities would be exempt from the limit during startup under the provisions in 40 CFR 60.8(a). Although facilities are exempt from the emission limit during startup, facility owners and operators could be cited for a violation of 40 CFR 60.11(d) if steps to minimize emissions are not taken during startup, shutdown, and malfunction.

Q5: If 40 CFR 60.8(c) does provide an exemption from enforcement during startups, is there any time limit associated with the exemption?

A5: Although Subpart G does not specify a limit on the amount of time that a facility is exempt from the nitrogen oxides emission limit during startup, enforcement under the provisions in 40 CFR 60.11(d) can be pursued if steps are not taken to minimize emissions during startup regardless of the duration of the excess emission period.

Letter:

4APT-ATMB

Gerald Kissel, P.E.
Air Permitting Supervisor
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Dear Mr. Kissel:

Thank you for your August 6, 2001, letter which requested guidance regarding several monitoring related issues involving 40 C.F.R. Part 60, Subpart G - Standards of Performance for Nitric Acid Plants. The issues raised in your letter are summarized below:

1. You asked for clarification regarding the definition of excess emissions for reporting and compliance purposes under Subpart G.

2. You asked whether excess emissions constitute a violation of the emission standard in Subpart G. Additionally, if excess emissions do constitute a violation of the standard, you asked for guidance regarding the averaging time and duration of the violation.

3. You asked whether 40 C.F.R. Sec. 60.8(c) allows excess emissions during nitric acid plant startups, and if so whether facilities are exempted from enforcement for violations of the standard during startups.

4. If 40 C.F.R. Sec. 60.8(c) does provide an exemption from enforcement during startups, you asked whether there was any time limit associated with the exemption.

Subpart G requires that a nitrogen oxides (NOX) continuous

emission monitoring system (CEMS) be installed and operated to measure nitric acid production unit emissions, and 40 C.F.R. Sec. 60.73(e) defines excess emissions as any three-hour period during which the CEMS indicates that the average emission rate exceeds the 1.5 kilogram per metric ton (3.0 pound per ton) emission limit in 40 C.F.R. Sec. 60.72(a)(1). According to 40 C.F.R. Sec. 60.11(g), any credible evidence can be considered when determining whether or not a source is in compliance with an applicable New Source Performance Standard (NSPS). Under these provisions, the CEMS data used for excess emission reporting could be used to cite violations for three-hour periods over which the data indicates that the nitric acid plant emissions would have been in excess of the applicable standard had a performance test been conducted. Based upon the way excess emissions are defined in 40 C.F.R. Sec. 60.73(e), the hourly data from the CEMS required under Subpart G must be averaged over a three-hour period in order to determine whether the NOx emission rate has exceeded the applicable limit. For the excess emission reporting required in 40 C.F.R. Sec. 60.7(c), a single three-hour period over which the NOx emission rate exceeds the limit in 40 C.F.R. Sec. 60.72(a)(1) would be reported as three hours of excess emissions. If there are consecutive, overlapping three-hour periods during which the average NOx emission rate exceeds the limit in 40 C.F.R. Sec. 60.72(a)(1), the duration of the excess emission period should be determined based upon the number of hours between the beginning and the end of the exceedance period. For example, in a six-hour period, there are a total of four three-hour averaging periods, and if the NOx emission rate exceeds the applicable standard for all four of these periods, the duration of the excess emissions reported under 40 C.F.R. Sec. 60.7(c) would be six hours.

According to 40 C.F.R. Sec. 60.8(c), operations during periods of startup, shutdown, and malfunction do not constitute representative conditions for performance testing, and emissions in excess of an applicable standard during such periods are not considered to be violations unless otherwise specified in the standard. Although the number of emission standards in 40 C.F.R. that do apply during startup, shutdown, and malfunction is relatively limited, 40 C.F.R. Part 60, Subpart Db (Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units) is an example of a regulation that contains limits which apply during these periods. According to this regulation, the sulfur dioxide and NOx limits specified in it apply at all times [see 40 C.F.R. Sec. 60.45b(a) and 40 C.F.R. Sec. 60.46b(a)]. Since Subpart G does not contain language indicating that the nitric acid plant standards apply at all times, the provisions in 40 C.F.R. Sec. 60.8(c) would exempt affected facilities from the emission limit during startup, shutdown, and malfunction periods. Even though the emission limit in Subpart G does not apply during startup, shutdown, and malfunction, the reporting provisions in 40 C.F.R. Sec. 60.7(c) require owners and operators of NSPS facilities to report all excess emissions, including those during time periods when the facility is exempt from the standard.

Although the NOx limit in Subpart G does not apply during

startup, shutdown, and malfunction, 40 C.F.R. Sec. 60.11(d) requires that owners and operators maintain and operate affected facilities in a manner to minimize emissions at all times. Because of this requirement, excess emission reports should be reviewed in order to determine whether source owners and operators have taken adequate steps to minimize emissions when excess emissions attributable to startup, shutdown, and malfunction represent a significant portion of a facility's operating time. If a company has not taken adequate steps to minimize emissions during startup, shutdown, and malfunction periods, enforcement for violations of the requirement in 40 C.F.R. Sec. 60.11(d) could be initiated. Determinations regarding whether a specific incident qualifies as a startup, shutdown, or malfunction period are ultimately made by either the U.S. Environmental Protection Agency (EPA) or the state or local agency that has received the delegation of authority allowing it to implement an applicable rule. Therefore, excess emission reports should also be reviewed to determine if the causes for exceedances have been properly identified when a company attributes a significant portion of an affected facility's excess emissions to startups, shutdowns, or malfunctions. The purpose for this review would be to determine whether the exemption from the emission limit during startup, shutdown, and malfunction actually applies to the extent claimed by the company submitting the report.

Although some NSPS specify a limit on the time that a source can be exempted from an emission standard during startup, shutdown, or malfunction, Subpart G does not contain such a limitation. One example of an NSPS that places a limit on the allowable excess emissions during startup, shutdown, and malfunction is 40 C.F.R. Part 60, Subpart Eb - Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or for Which Modification or Reconstruction is Commenced after June 19, 1996. According to 40 C.F.R. Sec. 60.58b(a)(1), the exemption from the emission standards in Subpart Eb during startup, shutdown, and malfunction is limited to three hours per occurrence. Since Subpart G does not contain a similar limitation, it could be argued that there is no restriction on the duration of exempted excess emissions during the startup of Subpart G sources In the event that there are excess emissions during the startup of a Subpart G facility, however, the provisions of 40 C.F.R. Sec. 60.11(d) do apply. Therefore, enforcement could be pursued under these provisions if the facility owner or operator does not take steps to minimize emissions during startup, regardless of the duration of the excess emission period.

If you have any questions about the issues addressed in this letter, please contact Mr. David McNeal of the EPA Region 4 staff at (404) 562-9102.

Sincerely,

R. Douglas Neeley
Chief
Air Toxics and Monitoring Branch Air, Pesticides and Toxics

Management Division adi.txt

STATE OF CALIFORNIA
ENVIRONMENTAL PROTECTION AGENCY
AIR RESOURCES BOARD

P. O. Box 2815
Sacramento, California 95812

March 30, 2009

ARB Staff Rule Review Results

To: Ms. Tiffany Lathrop
Air Quality Planner
Yolo Solano Air Quality Management District
Telephone Number: (530) 757-3677
e-mail: TLathrop@ysaqmd.org

From: Alex Krichevsky, (916) 324-6222
e-mail: akrichev@arb.ca.gov

The following proposed rule, which is scheduled for a public hearing to be held by your District Board on April 8, 2009, was received by us on February 19, 2009, for our review:

Rule 2.42 Nitric Acid Production

The Air Resources Board staff has reviewed the rule and, based on the information available to us at this time, we have no comments.

If you have any questions, please contact me by e-mail or at the telephone number above.