

TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION
FOR

Trademark Nitrogen Corporation

Hillsborough County

Construction Permit

Application Number

0570025-008-AC

Environmental Protection Commission of

Hillsborough County

Tampa, FL

August 26, 2013

I. Project Description

A. Applicant:

O. A. Bourassa
Technical Manager
Trademark Nitrogen Corporation
1216 Old Hopewell Road
Tampa, FL 33619

B. Engineer:

Kenneth E. Given, P.E.
Air Testing & Consulting, Inc.
333 N. Falkenburg Road
Unit B-214
Tampa, FL 33619

C. Project and Location:

This permit authorizes an increase in the hours of operation of the nitric acid plant. The project has been assigned Source Classification Code 3-01-013-02 for Chemical Manufacturing - Nitric Acid.

The facility has been assigned SIC Industry No. 28 – Chemicals and Allied Processes. The project is located at 1216 Old Hopewell Road, Tampa, FL 33619. UTM Coordinates of the location are 17-367.30E and 3092.60N.

D. Process and Controls:

This permit authorizes an increase in the hours of operation of the nitric acid plant from 8,400 hours/year to 8,760 hours/year at a nitrogen fertilizer production plant. The nitric acid plant consists of two absorption towers (primary and secondary) that operate in series. In the process, atmosphere air is compressed, heated, and mixed with hot ammonia. The mixture is passed through a catalyst to produce nitrogen oxides (NO₂). The oxides are passed through a series of heat exchangers, coolers, and through a primary absorber where the oxides are absorbed in water to produce nitric acid. The remaining oxides are passed through the secondary absorber acting as a control device to reduce NO_x emissions prior to being discharged through a stack to the atmosphere. The following is a more detailed description of the nitric acid plant operation.

The production of nitric acid involves three basic steps: (1) Oxidation of ammonia to nitric oxide, (2) oxidation of nitric oxide to nitrogen dioxide, and (3) absorption of nitrogen dioxide in water to nitric acid. The process begins with liquid ammonia entering the ammonia vaporizer and then entering an ammonia superheater where steam heats the ammonia vapors. The hot ammonia vapor stream is then directed to the ammonia-air mixer where a variable NH₃/air ratio is produced. Once past the ammonia-air mixer, the gas stream enters a converter which contains a platinum gauze catalyst. The converter operates at a temperature of approximately 1650 °F. The catalyst does not at any time participate in the oxidation of the NH₃, it simply allows the reaction to take place faster.

The converter has three major parts: a catalyst holder unit, a cover, and the combination of a waste heat boiler preheat tee section and a turbine gas heater. The oxidation of the ammonia/air mixture to nitric oxide (NO) in the converter is a heat releasing reaction (exothermic), consequently, no outside heat is required except during start-up. There is a potential of forming an explosive mixture at higher converter temperatures. To control the converter temperature, the hot process gas stream containing NO, NO₂, water and N₂ is passed through a turbine gas heater and then through a waste heat recovery boiler.

The hot process gas flows through the boiler, in which the heat exchange from the gas to the water generates 150 psi steam in the boiler. The cooling of the process gas is further accomplished by passing the hot gas through two more heat exchange units, the first of which is the air pre-heater. The hot process gas, going through the tubes of the air pre-heater, heats the process air to 600°F that had been previously filtered to remove particulate matter. This hot process air is used in the ammonia/air mixer. The last heat exchange unit is the tail gas heater. Here, the heat exchange is accomplished with the process gas flowing through the tail gas exiting the primary absorber. The process gas exiting this heat exchange unit is approximately 400 °F. The nitrogen dioxide/nitrogen tetroxide mixture (referred to as NO₂/dimer mixture) process gas from the tail gas heater flows through a platinum filter unit. This platinum filter unit is removed periodically for recovery of platinum that has been entrapped in the filter material.

The NO formed during the ammonia oxidation must be oxidized. In this process, the process gas flows from the platinum filter to the cooler condenser where it is further cooled, to 100 °F or less at pressures up to 116 lbs/in², by water circulating around tubes through which the process gas passes. During the nitric oxidation process, the nitric oxide reacts noncatalytically with residual oxygen to form NO₂ and nitrogen tetroxide (N₂O₄). Operating at low temperatures and high pressures promotes maximum production of NO₂ within a minimum reaction time. The final step introduces the NO₂/dimer mixture into the absorption process after being cooled. The condensed water vapors from the oxidation reaction are combined with the oxides of nitrogen to form weak nitric acid.

The remaining gas and weak acid then pass to the weak acid separator where the weak acid is drained off and the gas continues into the primary absorber. The separated weak acid is then pumped into the weak acid trays in the primary absorber. The cooled gas from the cooler condenser enters the bottom of the absorber above the bleaching trays, while liquid nitrogen tetroxide is added at a higher point. Weak acid from the abatement absorber is added at the top of the primary absorber in the correct amount to correspond to the oxidation rate to produce 53-55% acid. Both liquids flow countercurrent to the NO₂/dimer gas mixture. The weak acid passes downward through the primary absorber and continues to pick up strength until it exits the bleaching section with a concentration of 56%. Oxidation takes place in the free space between the trays, while absorption occurs on the trays.

The bleaching section of the primary absorber consists of five trays at the bottom of the column. Air is introduced into this section to strip out dissolved oxides of nitrogen and to assist re-oxidation of the nitric acid in the absorption tower. The amount of air added is kept as low as possible, consistent with satisfactory bleaching. Normally an excess of oxygen of 1% to 2% in the tail gas is desirable. The tail gas from the top of the primary absorber contains combinations of NO, NO₂ and N₂O₄ that has not been absorbed. This gas is fed to the bottom of the abatement absorber. The nitrogen dioxide is absorbed from the gas by a countercurrent flow of condensate.

Emissions from the nitric acid manufacture consists of NO, NO₂, HNO₃ mist, and NH₃. The major source of NO_x is the tailgas from the acid absorption tower. The control of NO_x emissions is accomplished by the abatement absorber. The tailgas from the top of the primary absorber that contains combinations of NO, NO₂ and N₂O₄ enters the abatement absorber where it is stripped of the oxides of nitrogen by the absorption process. This absorber has seventeen perforated trays. The efficiency of the abatement absorber is increased by increasing the number of absorber trays, operating the absorber at higher pressures or cooling the weak acid liquid in the absorber.

The nitric acid formed in the abatement absorber flows from the bottom of the tower on a level control basis to the primary absorber. The acid leaving the abatement absorber will have a concentration from 2% to 4%. The gas exits the abatement absorber and passes through a mist separator where any entrained acid is removed and sent back to the nitric acid storage tanks. The gas then passes through the tail gas steam pre-heater where it is preheated to 260 °F. It then enters the tail gas preheater where it is preheated to 400 °F before it enters the turbine gas heater. The gas leaves the turbine gas heater (870 °F to 910 °F) and goes through the power recovery turbine and then to the atmosphere.

The NO_x emissions are continuously monitored by the Rosemount NGA Model 2000 NO_x analyzer, which utilizes chemiluminescence for monitoring oxides of nitrogen. The analyzer is situated on the compressor floor by the compressor panel board.

The increase in hours of operation increases the NO_x emissions from 75.1 tons/year to 78.1 tons/year. The nitric acid plant is subject to 40 CFR 60 - Standards of Performance for New Stationary Sources, Subpart G - Nitric Acid Plants and Rule 62-296.408, F.A.C. - Nitric Acid Plants.

In addition, the facility operates a natural gas fired, GENERAC Power Systems, Inc. Model No. SG150, 150 kW emergency generator. The engine is categorically exempt from permitting pursuant to Rule 62-210.300(3)(a)35., F.A.C. provided that the fuel usage of the engine does not exceed maximum annual amount of 8.8 million standard cubic feet of natural gas. However, the engine is subject to the NSPS Subpart IIII since it was manufactured after April 1, 2006.

The primary absorption tower specifications are as follows:

Manufacturer	Blaw-Knox Corp.
Serial Number	15383
Shell Working Pressure	125 psi
Temperature	100 °F
Date Manufactured	1962
Tower Diameter	6.75 ft
Heat Removed	4,738,254 Btu/hr

E. Application Information:

Received on: July 26, 2013

Information Requested: N/A

Application Complete: July 26, 2013

II. Rule Applicability

This project is subject to the pre-construction review requirements of Chapter 403, Florida Statutes, Chapters, 62-204, 62-210, 62-212, 62-296, and 62-297, Florida Administrative Code (F.A.C.) and Chapter 1-3 of the Rules of the Environmental Protection Commission of Hillsborough County.

This project is not subject to the requirements of Rule 62-212.400, Prevention of Significant Deterioration, F.A.C. or Rule 62-212.500, New Source Review for Non-attainment Areas, F.A.C., since the facility is minor by state definition.

This project is subject to the requirements of Rule 62-212.300, Sources Not Subject to Prevention of Significant Deterioration or Non-attainment Requirements, F.A.C., since the project is not exempt from the permit requirements of Rule 62-210.300, F.A.C.

This project is subject to the requirements of Rule 62-296.320, General Pollutant Emission Limiting Standards, F.A.C., since the project is a potential source of odor and opacity.

This project is subject to the requirements of Rule 62-296.401 through 62-296.417, Specific Emission Limiting and Performance Standards, F.A.C., since there is an applicable source specific category for this source, specifically, Rule 62-296.408, F.A.C. - Nitric Acid Plants.

This project is not subject to the requirements of Rule 62-296.500, Reasonably Available Control Technology for VOCs, F.A.C., since there is not an applicable source specific category for this source.

This project is not subject to the requirements of Rule 62-296.600, Reasonably Available Control Technology for Lead, F.A.C., since there is not an applicable source specific category for this source.

This project is not subject to the requirements of Rule 62-296.700, Reasonably Available Control Technology for Particulate Matter, F.A.C. However, the facility is subject to Rule 62-296.712, F.A.C. since the facility-wide potential particulate matter emissions are greater than 5 lbs/hr and 15 TPY.

This project is subject to the requirements of Rule 62-204.800, Federal Regulations Adopted by Reference, F.A.C., since there is an applicable source specific category for this source, specifically, 40 CFR 60 - Standards of Performance for New Stationary Sources, Subpart G - Nitric Acid Plants.

This project is subject to the requirements of Chapter 84-446, Laws of Florida and Chapter 1-3, Rules of the Environmental Protection Commission of Hillsborough County.

III. Summary of Emissions

Emission Unit	Regulated Pollutant	Actual Emissions ⁽ⁱ⁾	Potential Emissions (PTE) ⁽ⁱⁱ⁾	Increase in Emissions	Allowable Emissions ⁽ⁱⁱⁱ⁾
		TPY	TPY	TPY	
001 - Nitric Acid Plant	NOx	56.9	78.3	21.4	3 lbs/ton
	Opacity				5%

- (i) Actual emissions for the nitric acid plant are based on the average of the 2012 and 2011 AOR data.
- (ii) Potential NOx emissions are based on the allowable emissions rate of 3 lb/ton of 100% HNO₃ produced, a maximum production rate of 5.96 tons/hr of HNO₃, and 8,760 hrs/year.
- (iii) Allowable NOx emissions are limited to 3.0 lb/ton of 100% HNO₃ produced per 40 CFR 60 Subpart G.

IV. Conclusions:

The emission limits proposed by the applicant will meet all of the requirements of Chapters 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C., and Chapter 1-3, Rules of the Commission.

The General and Specific Conditions listed in the proposed permit (attached) will assure compliance with all the applicable requirements of Chapters 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

V. Proposed Agency Action:

Pursuant to Section 403.087, Florida Statutes and Rule 62-4.070, Florida Administrative Code the Environmental Protection Commission of Hillsborough County hereby gives notice of its intent to issue a permit for construction of the aforementioned air pollution source in accordance with the draft permit and its conditions as stipulated (see attached).

CERTIFIED MAIL

In the Matter of an
Application for Permit by:

O. A. Bourassa
Technical Manager
Trademark Nitrogen Corporation
1216 Old Hopewell Road
Tampa, FL 33619

File No.: 0570025-008-AC
County: Hillsborough

INTENT TO ISSUE

The Environmental Protection Commission of Hillsborough County (EPC), as delegated by the Florida Department of Environmental Protection (DEP) gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above, for the reasons stated below.

The applicant, Trademark Nitrogen Corp., applied on July 26, 2013 to the EPC for a construction permit to increase the hours of operation of the nitric acid plant at a nitrogen fertilizer production facility. Emissions from the nitric acid plant are controlled by an abatement absorber. The facility, which is a Synthetic Non-TV Source, is located at 1216 Old Hopewell Road, Tampa, Hillsborough County, FL, 33619.

The EPC has permitting jurisdiction under Chapter 403 Florida Statutes (F.S.) and Florida Administrative Code (F.A.C.) Chapters 62-4 and 62-210. The project is not exempt from permitting procedures. The EPC has determined that an air pollution construction permit is required to commence or continue operations at the described facility.

The EPC intends to issue this permit based on the belief that reasonable assurances have been provided to indicate that operation of the source will comply with the appropriate provisions of Florida Administrative Code (F.A.C.) Chapters 62-204 through 62-297 and 62-4. Pursuant to Section 403.815 and 403.0872, F.S. and Rules 62-103.150 and 62-210.350(3), F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time as soon as possible, in the legal advertisement section of a newspaper of general circulation in the area

affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the EPC at the address or telephone number listed below. **The applicant shall provide proof of publication to the EPC, Air Permitting Section, at 3629 Queen Palm Drive, Tampa, Florida 33619 (Phone 813-627-2600 - FAX 813-627-2660) within 7 (seven) days of publication.** Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit pursuant to Rule 62-103.150(6), F.A.C.

The EPC will issue the final permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Section 120.569 and 120.57 F.S. before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Legal Department of the EPC at 3629 Queen Palm Drive, Tampa, Florida 33619, Phone 813-627-2600, Fax 813-627-2602. Petitions filed by the permit applicant or any of the parties listed below must be filed within 14 (fourteen) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed within 14 (fourteen) days of publication of the public notice or within 14 (fourteen) days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the EPC for notice of agency action may file a petition within 14 (fourteen) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S.; or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the EPC's action is based must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number if known;
- (b) The name, address, and telephone number of the petitioner and the name, address, and telephone number of each petitioner's representative, if any, which shall be the address for service purposes during the course of the proceedings; and an explanation of how the petitioner's substantial interests will be affected by the EPC's determination;
- (c) A statement of how and when the petitioner received notice of the EPC action;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
- (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the EPC's proposed action;
- (f) A statement of specific rules or statutes the petitioner contends requires reversal or modification

of the EPC's proposed action; and

(g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the EPC to take with respect to the EPC's proposed action.

A petition that does not dispute the material facts upon which the EPC's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the EPC's final action may be different from the position taken by it in this notice of intent. Persons whose substantial interests will be affected by any such final decision of the EPC on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation under section 120.573, F.S. is not available in this proceeding.

This action is final and effective on the date filed with the Clerk of the EPC unless a petition is filed in accordance with above. Upon the timely filing of a petition, this order will not be effective until further order of the EPC.

In addition to the above, a person subject to regulation has a right to apply to the Department of Environmental Protection for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542, F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, FL 32399-3000. The petition must specify the following information:

- (a) The name, address, and telephone number of the petitioner,
- (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any,
- (c) Each rule or portion of a rule from which a variance or waiver is requested,
- (d) The citation to the statute underlying (implemented by) the rule identified in (c) above,
- (e) The type of action requested,
- (f) The specific facts that would justify a variance or waiver for the petitioner,
- (g) The reason by the variance or waiver would serve the purposes of the underlying statute (implemented by the rule), and
- (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of the those terms is defined in Section 120.542(2), F.S., and that the purpose of the underlying statute will be or

has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of United States Environmental Protection Agency and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Any person listed below may request to obtain additional information, a copy of the application (except for information entitled to confidential treatment pursuant to Section 403.111, F.S.), all relevant supporting materials, and all other materials available to the EPC that are relevant to the permit decision. Interested persons may contact Diana M. Lee, P.E., at the above address or call (813) 627-2600, for additional information.

Any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes, by filing a notice of appeal under rule 9.110 of the Florida rules of Appellate Procedure with the EPC's Legal Office at 3629 Queen Palm Dr., Tampa, Florida 33619 and with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tampa, Florida

ENVIRONMENTAL PROTECTION COMMISSION
OF HILLSBOROUGH COUNTY

Richard D. Garrity, Ph.D.
Executive Director

cc: Florida Department of Environmental Protection (via email)
Ken Given, P.E. – Air Testing & Consulting, Inc.

ENVIRONMENTAL PROTECTION COMMISSION
OF HILLSBOROUGH COUNTY
NOTICE OF INTENT TO ISSUE PERMIT

The Environmental Protection Commission of Hillsborough County (EPC), as delegated by the Florida Department of Environmental Protection (DEP), gives notice of its intent to issue an air pollution Permit No. 0570025-008-AC to Trademark Nitrogen Corp. The applicant applied on July 26, 2013 to the EPC for a construction permit to increase the hours of operation of the nitric acid plant at a nitrogen fertilizer production facility. Emissions from the nitric acid plant are controlled by an abatement absorber. The facility, which is a Synthetic Non-Title V Source, is located at 1216 Old Hopewell Road, Tampa, Hillsborough County, FL, 33619.

A Best Available Control Technology (BACT) determination was not required.

The EPC will issue the Final permit with the conditions of the DRAFT permit unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, F.S. before the deadline for filing a petition. The procedures for petitioning for hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Legal Department of the EPC at 3629 Queen Palm Drive, Tampa, Florida 33619, Phone 813-627-2600, Fax 813-627-2602. Petitions filed by the permit applicant or any of the parties listed below must be filed within 14 (fourteen) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed within 14 (fourteen) days of publication of the public notice or within 14 (fourteen) days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the EPC for notice of agency action may file a petition within 14 (fourteen) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the F.A.C.

A petition that disputes the material facts on which the EPC's action is based must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number if known;
- (b) The name, address, and telephone number of the petitioner, and the name, address, and telephone number of each petitioner's representative, if any, which shall be the address for service purposes during the course of the proceedings; and an explanation of how the petitioner's substantial interests will be affected by the agency determination;
- (c) A statement of how and when petitioner received notice of the EPC action;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so

indicate;

(e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the EPC proposed action;

(f) A statement of specific rules or statutes the petitioner contends requires reversal or modification of the EPC's proposed action; and

(g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the EPC to take with respect to the EPC's proposed action.

A petition that does not dispute the material facts upon which the EPC's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the EPC's final action may be different from the position taken by it in this notice of intent. Persons whose substantial interests will be affected by any such final decision of the EPC on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation under section 120.573, F.S. is not available in this proceeding.

This action is final and effective on the date filed with the Clerk of the EPC unless a petition is filed in accordance with above. Upon the timely filing of a petition this order will not be effective until further order of the EPC.

Any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes, by filing a notice of appeal under rule 9.110 of the Florida rules of Appellate Procedure with the EPC's Legal Office at 3629 Queen Palm Drive, Tampa, Florida 33619 and with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

The complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Environmental Protection Commission of Hillsborough County, 3629 Queen Palm Drive, Tampa, Florida 33619. The complete project file includes the proposed Permit, the application, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact Diana M. Lee, P.E., at the above address, or call 813-627-2600, for additional information. Any written comments filed shall be available for public inspection. If written comments received result in a significant change in the proposed agency action, the EPC shall revise the proposed permit and require, if applicable, another Public Notice.

ENVIRONMENTAL PROTECTION COMMISSION OF
HILLSBOROUGH COUNTY, as Delegated by

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF PERMIT

O. A. Bourassa
Technical Manager
Trademark Nitrogen Corporation
1216 Old Hopewell Road
Tampa, FL 33619

Dear Mr. Bourassa:

Enclosed is Permit No. 0570025-008-AC to increase the hours of operation of the nitric acid plant. This permit is issued pursuant to Section 403.087, Florida Statutes.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the EPC in the Legal Department at 3629 Queen Palm Dr, Tampa, FL 33619; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the clerk of the EPC.

Executed in Tampa, Florida.

Sincerely,

Richard D. Garrity, Ph.D.
Executive Director

RDG/LAW/law

cc: Florida Department of Environmental Protection (via email)
Ken Given, P.E. – Air Testing & Consulting, Inc.

CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT and all copies were mailed before the close of business on _____ to the listed persons.

Clerk Stamp

FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated clerk, receipt of which is hereby acknowledged.

Clerk

Date

PERMITTEE:
Trademark Nitrogen Corp.
1216 Old Hopewell Road
Tampa, FL 33619

PERMIT/CERTIFICATION
Permit No.: 0570025-008-AC
County: Hillsborough
Expiration Date: May 26, 2014
Project: Nitric Acid Plant

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 62-204, 62-210, 62-212, 62-296, 62-297, and 62-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the EPC and made a part hereof and specifically described as follows:

This permit authorizes an increase in the hours of operation of the nitric acid plant at a nitrogen fertilizer production plant. The manufacturing plant is comprised of the following sources: a nitric acid plant with a maximum design capacity of 143 tons/day (nominal 125-ton/day), an ammonium nitrate plant with a maximum design capacity of 179 tons/day (nominal 150-ton/day), a magnesium nitrate solutions plant with a magnesium oxide silo, and a nitrogen-phosphorous-potassium blend plant (NPK liquid fertilizer). In addition, the facility operates a 200 HP natural gas fired boiler, a 4.5 MMBtu/hr natural gas fired water heater, a 150 kW natural gas fueled emergency generator, and a bulk storage warehouse with railcar unloading, truck loading, and an integral bagging machine.

Nitric Acid Plant

The nitric acid plant consists of two absorption towers (primary and secondary) that operate in series. In the process, atmosphere air is compressed, heated, and mixed with hot ammonia. The mixture is passed through a catalyst to produce nitrogen oxides (NO₂). The oxides are passed through a series of heat exchangers, coolers and through a primary absorber where the oxides are absorbed in water to produce nitric acid. The remaining oxides are passed through the secondary absorber acting as a control device to reduce NO_x emissions prior to being discharged through a stack to the atmosphere. The following is a more detailed description of the nitric acid plant operation.

The production of nitric acid involves three basic steps: (1) Oxidation of ammonia to nitric oxide, (2) oxidation of nitric oxide to nitrogen dioxide, and (3) absorption of nitrogen dioxide in water to nitric acid. The process begins with liquid ammonia entering the ammonia vaporizer and then

entering the ammonia superheater where steam heats the ammonia vapors. The hot ammonia vapor stream is then directed to the ammonia-air mixer where a variable NH_3/air ratio is produced. Once past the ammonia-air mixer, the gas stream enters a converter which contains a platinum gauze catalyst. The converter operates at a temperature of approximately 1650 °F. The catalyst does not at any time participate in the oxidation of the NH_3 , it simply allows the reaction to take place faster.

The converter has three major parts: a catalyst holder unit, a cover, and the combination of a waste heat boiler preheat tee section and a turbine gas heater. The oxidation of the ammonia/air mixture to nitric oxide (NO) in the converter is a heat releasing reaction (exothermic), consequently, no outside heat is required except during start-up. There is a potential of forming an explosive mixture at higher converter temperatures. To control the converter temperature, the hot process gas stream containing NO, NO_2 , water and N_2 is passed through a turbine gas heater and then through a waste heat recovery boiler.

The hot process gas flows through the boiler, in which the heat exchange from the gas to the water generates 150 psi steam in the boiler. The cooling of the process gas is further accomplished by passing the hot gas through two more heat exchange units, the first of which is the air pre-heater. The hot process gas, going through the tubes of the air pre-heater, heats the process air to 600°F that had been previously filtered to remove particulate matter. This hot process air is used in the ammonia/air mixer. The last heat exchange unit is the tail gas heater. Here, the heat exchange is accomplished with the process gas flowing through the tail gas exiting the primary absorber. The process gas exiting this heat exchange unit is approximately 400 °F. The nitrogen dioxide/nitrogen tetroxide mixture (referred to as NO_2/dimer mixture) process gas from the tail gas heater flows through a platinum filter unit. This platinum filter unit is removed periodically for recovery of platinum that has been entrapped in the filter material.

The NO formed during the ammonia oxidation must be oxidized. In this process, the process gas flows from the platinum filter to the cooler condenser where it is further cooled, to 100 °F or less at pressures up to 116 lbs/in^2 , by water circulating around tubes through which the process gas passes. During the nitric oxidation process, the nitric oxide reacts noncatalytically with residual oxygen to form NO_2 and nitrogen tetroxide (N_2O_4). Operating at low temperatures and high pressures promotes maximum production of NO_2 within a minimum reaction time. The final step introduces the NO_2/dimer mixture into the absorption process after being cooled. The condensed water vapors from the oxidation reaction are combined with the oxides of nitrogen to form weak nitric acid.

The remaining gas and weak acid then pass to the weak acid separator where the weak acid is drained off and the gas continues into the primary absorber. The separated weak acid is then pumped into the weak acid trays in the primary absorber. The cooled gas from the cooler condenser enters the bottom of the absorber above the bleaching trays, while liquid nitrogen tetroxide is added at a higher point. Weak acid from the abatement absorber is added at the top of the primary absorber in the correct amount to correspond to the oxidation rate to produce 53-55% acid. Both liquids flow countercurrent to the NO_2/dimer gas mixture. The weak acid passes downward through the primary absorber and continues to pick up strength until it exits the bleaching section with a concentration of 56%. Oxidation takes place in the free space between the trays, while absorption occurs on the trays.

The bleaching section of the primary absorber consists of five trays at the bottom of the column. Air is

introduced into this section to strip out dissolved oxides of nitrogen and to assist re-oxidation of the nitric acid in the absorption tower. The amount of air added is kept as low as possible, consistent with satisfactory bleaching. Normally an excess of oxygen of 1% to 2% in the tail gas is desirable. The tail gas from the top of the primary absorber contains combinations of NO, NO₂ and N₂O₄ that has not been absorbed. This gas is fed to the bottom of the abatement absorber. The nitrogen dioxide is absorbed from the gas by a countercurrent flow of condensate.

Emissions from the nitric acid manufacture consists of NO, NO₂, HNO₃ mist, and NH₃. The major source of NO_x is the tailgas from the acid absorption tower. The control of NO_x emissions is accomplished by the abatement absorber. The tailgas from the top of the primary absorber that contains combinations of NO, NO₂ and N₂O₄ enters the abatement absorber where it is stripped of the oxides of nitrogen by the absorption process. This absorber has seventeen perforated trays. The efficiency of the abatement absorber is increased by increasing the number of absorber trays, operating the absorber at higher pressures or cooling the weak acid liquid in the absorber.

The nitric acid formed in the abatement absorber flows from the bottom of the tower on a level control basis to the primary absorber. The acid leaving the abatement absorber will have a concentration from 2% to 4%. The gas exits the abatement absorber and passes through a mist separator where any entrained acid is removed and sent back to the nitric acid storage tanks. The gas then passes through the tail gas steam pre-heater where it is preheated to 260 °F. It then enters the tail gas preheater where it is preheated to 400 °F before it enters the turbine gas heater. The gas leaves the turbine gas heater (870 °F to 910 °F) and goes through the power recovery turbine and then to the atmosphere.

The NO_x emissions are continuously monitored by the Rosemount NGA Model 2000 NO_x analyzer, which utilizes chemiluminescence for monitoring oxides of nitrogen. The analyzer is situated on the compressor floor by the compressor panel board.

The primary absorption tower specifications are as follows:

Manufacturer	Blaw-Knox Corp.
Serial Number	15383
Shell Working Pressure	125 psi
Temperature	100 °F
Date Manufactured	1962
Tower Diameter	6.75 ft
Heat Removed	4,738,254 Btu/hr

Location: 1216 Old Hopewell Road, Tampa, Hillsborough County

UTM: 17-367.3 E 3092.6 N

NEDS NO: 0025

Emission Unit ID: 001 - 143 TPD Nitric Acid Plant with 2 Absorption Towers

References Permit No.: 0570025-007-AC

Replaces Permit No.: NA

PERMITTEE:
Trademark Nitrogen Corporation

PERMIT/CERTIFICATION NO.: 0570025-008-AC
PROJECT: Nitric Acid Plant

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions. [Rule 62-4.160, F.A.C.]
2. All applicable rules of the Environmental Protection Commission of Hillsborough County including design discharge limitations specified in the application shall be adhered to. The permit holder may also need to comply with county, municipal, federal, or other state regulations prior to construction. [Rule 62-4.070(7), F.A.C.]
3. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapters 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C., or any other requirements under federal, state, or local law. [Rule 62-210.300, F.A.C.]
4. This nitric acid plant is permitted to operate a maximum of 8,760 hours per year. [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]
5. In order to limit the potential to emit, the production rate from the nitric acid plant shall not exceed 5.96 tons of 100% HNO₃ per hour and 143 tons per day. [Rules 62-4.070(3), 62-210.200(PTE), and 62-296.408, F.A.C., 40 CFR 60.72(a)(1), and Permit Nos. 0570025-004-AC and 0570025-007-AC]
6. Visible emissions from the nitric acid plant shall not exceed 5% opacity. [Rule 62-4.070(3), F.A.C. and Chapter 1-3.53(1)(b), Rules of the Hillsborough County Environmental Protection Commission]
{NOTE: This visible emission limitation for the nitric acid plant is more restrictive than, and therefore meets the requirements of, the NSPS Subpart G, 40 CFR 60.72(a)(2), and Rule 62-296.408(1), F.A.C. limitations of 10% opacity.}
7. In order to limit the potential to emit, the Nitrogen Oxide (NO_x) emissions from the nitric acid plant shall not exceed any of the following emission limits: [Rules 62-4.070(3), 62-210.200(PTE), and 62-296.408, F.A.C., and 40 CFR 60.72(a)(1)]
 - A) 3.0 pounds per ton of 100% HNO₃ produced (NSPS Subpart G limitation)
 - B) 78.3 tons per year
8. [Reserved]
9. The permittee shall not cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 62-296.320, F.A.C.]
10. Test the emissions from the nitric acid plant for visible emissions (VE), at the point of highest opacity, once every federal fiscal year with a target date of April 7th of each year. Test the emissions from the nitric acid plant for nitrogen oxides (NO_x) every five years by no later than 90 days prior the application due date for renewal of the operating permit. A report of the test data shall be submitted to the air Compliance Section of the Environmental Protection Commission of Hillsborough County within 45 days of the testing. Testing procedures shall be consistent with the requirements of Rule 62-297.310,

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Trademark Nitrogen Corporation

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SPECIFIC CONDITIONS:

F.A.C. [Rules 62-4.070(3), and 62-297.310, F.A.C.]

11. Compliance with the visible emission limitations of Specific Condition No. 6 shall be determined using EPA Method 9 contained in 40 CFR 60, Appendix A and adopted by reference in Rule 62-297, F.A.C. The visible emissions test shall be conducted by a certified observer and shall be a minimum of thirty (30) minutes in duration. The test observation period shall include the period during which the highest opacity can reasonably be expected to occur. The minimum requirements for stationary point source emissions test procedures and reporting shall be in accordance with Rule 62-297, F.A.C. and 40 CFR 60, Appendix A. [Rule 62-297.310, F.A.C.]

12. Compliance with the NO_x emission limitations of Specific Condition No. 7 shall be determined in accordance with 40 CFR 60.74 using EPA Methods 7, 7A, 7C or 7D contained in 40 CFR 60, Appendix A and adopted by reference in Rule 62-297, F.A.C. In accordance with 40 CFR 60.74(b)(4), the production rate of nitric acid during the test shall be based on daily production records and confirmed by material balance over the production system. The minimum requirements for stationary point source emissions test procedures and reporting shall be in accordance with Rule 62-297, F.A.C. and 40 CFR 60, Appendix A. [Rules 62-297.310 and 62-296.408, F.A.C. and 40 CFR 60.74]

13. Testing of emissions shall be conducted with the source operating at capacity. Capacity is defined as 90-100% of the rated capacity of 5.96 tons of 100% HNO₃ per hour produced in the nitric acid plant. If it is impracticable to test at permitted capacity, then the source may be tested at less than capacity; in this case subsequent source operation is limited to 110% of the test load until a new test is conducted. Once the unit is so limited, then operation at higher capacities is allowed for no more than fifteen days for purposes of additional compliance testing to regain the rated capacity in the permit, with prior notification to the EPC. Failure to submit the input rates and actual operating conditions may invalidate the test. [Rules 62-4.070(3) and 62-297.310(2)(b), F.A.C.]

14. The permittee shall notify the Air Compliance Section of the Environmental Protection Commission of Hillsborough County at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the contact person who will be responsible for coordinating and having such test conducted. [Rule 62-297.310(7)(a)9., F.A.C.]

15. The permittee shall operate, maintain, and calibrate a continuous emission monitoring system for measuring and recording NO_x emissions. The span value for calibration checks shall be 500 ppm of NO₂. [Rule 62-4.070(3), F.A.C. and Permit No. 0570025-007-AC]

16. Monitoring data shall be converted into the units of the 40 CFR 60 NSPS Subpart G standard (pounds/ton of 100% HNO₃) through use of an established conversion factor in accordance with 40 CFR 60.73(b). The conversion factor shall be re-established during any performance test required by 40 CFR 60.8 or any continuous monitoring system performance evaluation required by 40 CFR 60.13(c). The conversion factor shall be established and reported with each NO_x compliance stack test report. All monitoring data shall be retained for at least a two year period. [40 CFR 60.73(a) and 60.74(d)]

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Trademark Nitrogen Corporation

PERMIT/CERTIFICATION NO.: 0570025-008-AC
PROJECT: Nitric Acid Plant

SPECIFIC CONDITIONS:

17. In accordance with 40 CFR 60.7(c) and 40 CFR 60.73(e), quarterly excess emission reports shall be submitted to the Air Compliance Section of the Environmental Protection Commission of Hillsborough County. Excess emissions are defined as any 3-hour period during which the average (arithmetic average of 3 continuous 1-hour periods) NO_x emissions, as measured by the NO_x continuous emission monitoring system, exceed the standards contained in Specific Condition No. 7.A) or 7.B). The quarterly reports shall include the following:

- A) The date and time of commencement and completion of each time period of excess emissions, the magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), and any conversion factors used.
- B) Specific identification of excess emissions that occur during startups, shutdowns, and malfunctions of the affected source. This shall include the nature and cause of any malfunctions (if known) and the corrective action taken or preventative measures adopted.
- C) The date and time identifying each period during which the NO_x continuous emissions monitoring system was inoperative (not including zero and span checks), and the nature of system repairs or adjustments.
- D) When no excess emissions have occurred or the continuous emission monitoring system has not been inoperative, repaired or adjusted, such information shall be stated in the report.
- E) A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 CFR 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The EPC may request additional relevant information subsequent to this notice. [40 CFR 60.7(a)(4)]
- F) The permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b)]
- G) The permittee shall maintain a file of all measurements, including performance testing measurements and all other information required by this part recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records. [40 CFR 60.7(f)]
- H) The opacity standards set forth in this permit shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard. [40 CFR 60.11(c)]
- I) At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the EPC which may

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Trademark Nitrogen Corporation

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SPECIFIC CONDITIONS:

include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [40 CFR 60.11(d)]

- J) No owner or operator subject to the provisions of this part shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere. [40 CFR 60.12]

18. In order to demonstrate compliance with the requirements of Specific Condition Nos. 4, 5, and 7, the permittee shall maintain daily records. The records shall be maintained onsite for at least three years and shall be made available to any local, state, or federal air pollution agency. The records shall include, but not be limited to, the following: [40 CFR 60.73(c), Rules 62-4.070(3) and 62-4.160(14), F.A.C.]

- A) Day, Month, Year
- B) Nitric acid plant production rate (in tons/day of 100% HNO₃)
- C) Ammonium nitrate production rate (in tons/day)
- D) Hours of operation for the nitric acid plant and the ammonium nitrate plant
- E) Monthly and 12-month rolling NO_x emissions from the nitric acid plant

19. Submit to the Environmental Protection Commission of Hillsborough County each calendar year on or before April 1, completed DEP Form 62-210.900(5), "Annual Operating Report for Air Pollutant Emitting Facility", for the preceding calendar year. [Rule 62-210.370(3), F.A.C.]

20. If the permittee wishes to transfer this permit to another owner, an "Application for Transfer of Air Permit" (DEP Form 62-210.900(7)) shall be submitted, in duplicate, to the Environmental Protection Commission of Hillsborough County within 30 days after the sale or legal transfer of the permitted facility. [Rule 62-4.120, F.A.C.]

ENVIRONMENTAL PROTECTION COMMISSION
OF HILLSBOROUGH COUNTY

Richard D. Garrity, Ph.D.
Executive Director

