

Facility DEC ID: 9145200327

**PERMIT
Under the Environmental Conservation Law (ECL)**

IDENTIFICATION INFORMATION

Permit Type: Air State Facility
 Permit ID: 9-1452-00327/00001
 Mod 0 Effective Date: 05/19/2015 Expiration Date: 05/18/2025
 Mod 1 Effective Date: 01/23/2019 Expiration Date: 05/18/2025
 Mod 2 Effective Date: 02/26/2019 Expiration Date: 05/18/2025
 Mod 3 Effective Date: 03/08/2021 Expiration Date: 05/18/2025

Permit Issued To: NIAGARA REFINING LLC
 5601 TRANSIT RD
 DEPEW, NY 14043

Facility: NIAGARA REFINING LLC
 5601 TRANSIT RD
 DEPEW, NY 14043

Contact: ROGER SHOWALTER
 5601 TRANSIT RD
 DEPEW, NY 14043
 (716) 706-1299

Description:

(1) Niagara Refining, LLC is the owner and operator of an ammonium paratungstate and tungsten oxide production facility. The facility is located at 5601 Transit Road in the Village of Depew, Erie County, New York.

(2) This permit modification (Ren 1 Mod 3) is for the installation and operation of an Ammonia Decomposition System identified under new Process 009 and new emission point 00013. The new emission sources include a preconditioner (PRECN), two air strippers (STRPA, STRPB) and a catalytic oxidizer (CATOX). A new hammermill (HMILL) and baghouse (BGHSE) was added to existing Process 01A.

(3) The Ammonia Decomposition project was evaluated for potential ambient impacts using the AERSCREEN model for ammonia emissions. The results indicate the maximum impact from this new project, in addition to the existing ammonia sources, is not expected to exceed the Short-term Guideline Concentration (SGC) and Annual Guideline Concentration (AGC) limits for ammonia based on the required minimum 90% control efficiency from the ammonia decomposition system. A permit condition to maintain a minimum 90% control efficiency on the catalytic oxidizer and a requirement to complete a performance test on the catalytic oxidizer during the term of the permit was added in Condition 3-30. The design air flow and temperature rise across the catalytic bed were added to Permit Conditions 3-28 and 3-29.

(4) The proposed hammermill and baghouse satisfy the 0.050 grain/dscf limit of 6NYCRR Part

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212-2.4(b).

(5) Permit Condition 3-3 for regulation 6NYCRR Part 212-1.6(a) was updated to include Emission Point 000013 in paragraph (2). In addition, reference to Method 22 was removed from the condition, specific language clarifying there are no reporting requirements was added as paragraph (7) and the averaging method was changed to a 6-minute average using Method 9.

(6) The permit maintains the requirement to complete a performance test during the term of the permit on the hydrogen sulfide scrubber and the roaster and smelter scrubbers to reduce sulfur dioxide emissions.

(7) Niagara Refining LLC (NR) is applicable to 40 CFR 63 Subpart VVVVVV – National Emission Standard for Hazardous Air Pollutants (NESHAP) for Chemical Manufacturing Area Sources. The NESHAP is applicable to the entire ammonium paratungstate and tungsten oxide production process. As such, all of the process equipment combined comprises a single Chemical Manufacturing Process Unit (CMPU). The applicable sections of the regulation were added to the permit under Permit Conditions 3-4 through 3-15.

(8) The combined maximum total production of ammonium paratungstate, tungsten oxide and ultra-pure tungsten oxide from all operations at this facility remains limited to 2,750 tons per year since the maximum projected permitted emission rates and Part 212 ambient impact evaluations are based on this production rate. Permit Condition 3-19 changed the regulation citation from 6NYCRR Part 212-2.1(b) to Part 201-5 as this is more appropriate to limit the production.

(9) An annual reporting requirement has been added to permit Condition 3-16 to ensure proper operation and maintenance practices are used to minimize the impact of excess emissions on ambient air quality, the environment and human health.

(10) Permit Condition 3-21 was updated to include the Part 212 analysis for emission point 00013. In addition, the regulation citation was changed from 212-2.1(b) to 212-2.3(b) as this is the preferred citation. The monitoring type was changed from recordkeeping/maintenance procedures to intermittent emission testing as this is the more appropriate monitoring type for the testing requirements.

(11) Permit Condition 3-22 and 3-25 changed the regulation citation from 212-2.1(b) to 212-2.3(b) as this is the preferred citation. In addition, an annual reporting requirement was added.

(12) Permit Condition 3-23 changed the regulation citation from 212-2.1(b) to 212-2.3(b) as this is the preferred citation. In addition, the monitoring type was changed from recordkeeping/maintenance procedures to intermittent emission testing as this is the more appropriate monitoring type for the testing requirements.

(13) Permit Condition 3-24 changed the regulation citation from 257-10 to 257-5 due to 257-10 being repealed. In addition, the condition was updated to remove redundant emission testing required in Condition 3-23.

(14) Permit Condition 3-26 changed the regulation citation from 212-2.1(b) to 212-2.3(b) as this is the preferred citation. In addition, specific language clarifying there are no reporting requirements was added as paragraph (4).

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(15) Condition 3-27 changed the regulation citation from 212-2.1(b) to 212-2.3(b) as this is the preferred citation. In addition, the monitoring type was changed from monitoring of process or control device parameters as surrogate to intermittent emission testing as this is the more appropriate monitoring type for the testing requirements.

(16) A New York State Climate Leadership and Community Protection Act (CLCPA) requirement was added as Permit Condition 3-20.

(17) A requirement to test for nitrogen dioxide from new emission point EP00013 was added along with the requirement to model impacts to the National Ambient Air Quality Standard.

(18) Best management practices shall be implemented to reduce the potential for off-site odors and fugitive dust emissions.

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, the General Conditions specified and any Special Conditions included as part of this permit.

Permit Administrator: LISA M CZECHOWICZ
NYSDEC - REGION 9
270 MICHIGAN AVE
BUFFALO, NY 14203-2915

Authorized Signature: _____ Date: ___ / ___ / _____

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Notification of Other State Permittee Obligations

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification

The permittee expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the compliance permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in any compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit

The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits

The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights

This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

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- 7 6 Submission of application for permit modification or renewal-REGION 9 HEADQUARTERS

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DEC GENERAL CONDITIONS
****** General Provisions ******
GENERAL CONDITIONS - Apply to ALL Authorized Permits.

Condition 1: Facility Inspection by the Department
Applicable State Requirement: ECL 19-0305

Item 1.1:

The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71-0301 and SAPA 401(3).

Item 1.2:

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

Item 1.3:

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

Condition 2: Relationship of this Permit to Other Department Orders and Determinations
Applicable State Requirement: ECL 3-0301 (2) (m)

Item 2.1:

Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

Condition 1-1: Applications for permit renewals, modifications and transfers
Applicable State Requirement: 6 NYCRR 621.11

Item 1-1.1:

The permittee must submit a separate written application to the Department for renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing.

Item 1-1.2:

The permittee must submit a renewal application at least 180 days before the expiration of permits for Title V and State Facility Permits.

Item 1-1.3

Permits are transferrable with the approval of the department unless specifically prohibited by the statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

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Condition 3: Applications for permit renewals, modifications and transfers

Applicable State Requirement: 6 NYCRR 621.11

Item 3.1:

The permittee must submit a separate written application to the Department for renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing.

Item 3.2:

The permittee must submit a renewal application at least 180 days before expiration of permits for Title V Facility Permits, or at least 30 days before expiration of permits for State Facility Permits.

Item 3.3:

Permits are transferrable with the approval of the department unless specifically prohibited by the statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

Condition 4: Permit modifications, suspensions or revocations by the Department

Applicable State Requirement: 6 NYCRR 621.13

Item 4.1:

The Department reserves the right to exercise all available authority to modify, suspend, or revoke this permit in accordance with 6NYCRR Part 621. The grounds for modification, suspension or revocation include:

- a) materially false or inaccurate statements in the permit application or supporting papers;
- b) failure by the permittee to comply with any terms or conditions of the permit;
- c) exceeding the scope of the project as described in the permit application;
- d) newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;
- e) noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

****** Facility Level ******

Condition 5: Submission of application for permit modification or renewal-REGION 9 HEADQUARTERS

Applicable State Requirement: 6 NYCRR 621.6 (a)

Item 5.1:

Submission of applications for permit modification or renewal are to be submitted to:
 NYSDEC Regional Permit Administrator
 Region 9 Headquarters
 Division of Environmental Permits
 270 Michigan Avenue
 Buffalo, NY 14203-2915

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(716) 851-7165

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ARTICLE 19: AIR POLLUTION CONTROL - AIR STATE FACILITY PERMIT

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5601 TRANSIT RD
DEPEW, NY 14043

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DEPEW, NY 14043

Authorized Activity By Standard Industrial Classification Code:
3399 - PRIMARY METAL PRODUCTS, NEC

Mod 0 Permit Effective Date: 05/19/2015

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Mod 1 Permit Effective Date: 01/23/2019

Permit Expiration Date: 05/18/2025

Mod 2 Permit Effective Date: 02/26/2019

Permit Expiration Date: 05/18/2025

Mod 3 Permit Effective Date: 03/08/2021

Permit Expiration Date: 05/18/2025

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**** Facility Level ****

NOTIFICATION OF GENERAL PERMITTEE OBLIGATIONS

This section contains terms and conditions which are federally enforceable. Permittees may also have other obligations under regulations of general applicability

Item A: Sealing - 6 NYCRR 200.5

The Commissioner may seal an air contamination source to prevent its operation if compliance with 6 NYCRR Chapter III is not met within the time provided by an order of the Commissioner issued in the case of the violation. Sealing means labeling or tagging a source to notify any person that operation of the source is prohibited, and also includes physical means of preventing the operation of an air contamination source without resulting in destruction of any equipment associated with such source, and includes, but is not limited to, bolting, chaining or wiring shut control panels, apertures or conduits associated with such source.

No person shall operate any air contamination source sealed by the Commissioner in accordance with this section unless a modification has been made which enables such source to comply with all requirements applicable to such modification.

Unless authorized by the Commissioner, no person shall remove or alter any seal affixed to any contamination source in accordance with this section.

Item B: Acceptable Ambient Air Quality - 6 NYCRR 200.6

Notwithstanding the provisions of 6 NYCRR Chapter III, Subchapter A, no person shall allow or permit any air contamination source to emit air contaminants in quantities which alone or in combination with emissions from other air contamination sources would contravene any applicable ambient air quality standard and/or cause air pollution. In such cases where contravention occurs or may occur, the Commissioner shall specify the degree and/or method of emission control required.

Item C: Maintenance of Equipment - 6 NYCRR 200.7

Any person who owns or operates an air contamination source which is equipped with an emission control device shall operate such device and keep it in a satisfactory state of maintenance and repair in accordance with ordinary and necessary practices, standards and procedures, inclusive of manufacturer's specifications,

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required to operate such device effectively.

Item D: Unpermitted Emission Sources - 6 NYCRR 201-1.2

(a) Except as otherwise provided by this Part, construction or operation of a new, modified or existing air contamination source without a registration or permit issued pursuant to this Part is prohibited.

(b) If an existing facility or emission source was subject to the permitting requirements of this Part at the time of construction or modification, and the owner or operator failed to apply for a permit or registration as described in this Part, the owner or operator must apply for a permit or registration in accordance with the provisions of this Part. The facility or emission source is subject to all regulations that were applicable to it at the time of construction or modification and any subsequent requirements applicable to existing emission sources.

Item E: Recycling and Salvage - 6 NYCRR 201-1.7

Where practical, any person who owns or operates an air contamination source shall recycle or salvage air contaminants collected in an air cleaning device according to the requirements of 6 NYCRR.

Item F: Prohibition of Reintroduction of Collected Contaminants to the Air - 6 NYCRR 201-1.8

No person shall unnecessarily remove, handle, or cause to be handled, collected air contaminants from an air cleaning device for recycling, salvage or disposal in a manner that would reintroduce them to the outdoor atmosphere.

Item G: Proof of Eligibility for Sources Defined as Exempt Activities - 6 NYCRR 201-3.2 (a)

The owner and/or operator of an emission source or unit that is eligible to be exempt, may be required to certify that it operates within the specific criteria described in 6 NYCRR Subpart 201-3. The owner or operator of any such emission source must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request.

Department representatives must be granted access to any facility which contains emission sources or units subject to 6 NYCRR Subpart 201-3, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations, or law.

Item H: Proof of Eligibility for Sources Defined as Trivial

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Activities - 6 NYCRR 201-3.3 (a)

The owner and/or operator of an emission source or unit that is listed as being trivial in 6 NYCRR Part 201 may be required to certify that it operates within the specific criteria described in 6 NYCRR Subpart 201-3. The owner or operator of any such emission source must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility which contains emission sources or units subject to 6 NYCRR Subpart 201-3, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations, or law.

Item I: Required Emission Tests - 6 NYCRR 202-1.1

An acceptable report of measured emissions shall be submitted, as may be required by the Commissioner, to ascertain compliance or noncompliance with any air pollution code, rule, or regulation. Failure to submit a report acceptable to the Commissioner within the time stated shall be sufficient reason for the Commissioner to suspend or deny an operating permit. Notification and acceptable procedures are specified in 6 NYCRR Subpart 202-1.

Item J: Open Fires Prohibitions - 6 NYCRR 215.2

Except as allowed by section 215.3 of 6 NYCRR Part 215, no person shall burn, cause, suffer, allow or permit the burning of any materials in an open fire.

Item K: Permit Exclusion - ECL 19-0305

The issuance of this permit by the Department and the receipt thereof by the Applicant does not and shall not be construed as barring, diminishing, adjudicating or in any way affecting any legal, administrative or equitable rights or claims, actions, suits, causes of action or demands whatsoever that the Department may have against the Applicant for violations based on facts and circumstances alleged to have occurred or existed prior to the effective date of this permit, including, but not limited to, any enforcement action authorized pursuant to the provisions of applicable federal law, the Environmental Conservation Law of the State of New York (ECL) and Chapter III of the Official Compilation of the Codes, Rules and Regulations of the State of New York (NYCRR). The issuance of this permit also shall not in any way affect pending or future enforcement actions under the Clean Air Act brought by the United States or any person.

Item L: Federally Enforceable Requirements - 40 CFR 70.6 (b)

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All terms and conditions in this permit required by the Act or any applicable requirement, including any provisions designed to limit a facility's potential to emit, are enforceable by the Administrator and citizens under the Act. The Department has, in this permit, specifically designated any terms and conditions that are not required under the Act or under any of its applicable requirements as being enforceable under only state regulations.

FEDERAL APPLICABLE REQUIREMENTS
The following conditions are federally enforceable.

Condition 3-1: Acceptable Ambient Air Quality
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement:6 NYCRR 200.6

Item 3-1.1:

Notwithstanding the provisions of 6 NYCRR Chapter III, Subchapter A, no person shall allow or permit any air contamination source to emit air contaminants in quantities which alone or in combination with emissions from other air contamination sources would contravene any applicable ambient air quality standard and/or cause air pollution. In such cases where contravention occurs or may occur, the Commissioner shall specify the degree and/or method of emission control required.

Condition 3-2: Maintenance of Equipment
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement:6 NYCRR 200.7

Replaces Condition(s) 1-1

Item 3-2.1:

Any person who owns or operates an air contamination source which is equipped with an emission control device shall operate such device and keep it in a satisfactory state of maintenance and repair in accordance with ordinary and necessary practices, standards and procedures, inclusive of manufacturer's specifications, required to operate such device effectively.

Condition 1-2: Non Applicable requirements
Effective between the dates of 01/23/2019 and 05/18/2025

Applicable Federal Requirement:6 NYCRR 201-6.4 (g)

Item 1-2.1:

This section contains a summary of those requirements that have been specifically identified as being not applicable to this facility and/or emission units, emission points, processes and/or

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emission sources within this facility. The summary also includes a justification for classifying any such requirements as non-applicable.

(From Mod 1) 40 CFR Part 60, Subpart LL
 Reason: 40 CFR 60 Subpart LL, New Source Performance Standards for Metallic Mineral Processing Plants is applicable to facilities that process metallic mineral concentrates from ore. Niagara Refining reports Subpart LL is not applicable to this facility because it does not process ore, but instead, ammonium paratungstate is produced from metallic mineral concentrates that have been concentrated to approximately 50 percent prior to arrival on-site.

40 CFR Part 68
 Reason: 40 CFR 68 Chemical Accident Prevention Provisions: Niagara Refining states the facility is not subject to the requirements of the Risk Management Program or general Duty Clause because the facility does not use or store anhydrous ammonia or a 20% ammonia solution.

Condition 19: Visible Emissions Limited
Effective between the dates of 05/19/2015 and 05/18/2025

Applicable Federal Requirement:6 NYCRR 211.2

Item 19.1:
 Except as permitted by a specific part of this Subchapter and for open fires for which a restricted burning permit has been issued, no person shall cause or allow any air contamination source to emit any material having an opacity equal to or greater than 20 percent (six minute average) except for one continuous six-minute period per hour of not more than 57 percent opacity.

Condition 3-3: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement:6 NYCRR 212-1.6 (a)

Replaces Condition(s) 1-3

Item 3-3.1:
 The Compliance Demonstration activity will be performed for the Facility.

Item 3-3.2:
 Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL
 DEVICE PARAMETERS AS SURROGATE

Monitoring Description:

OPACITY MONITORING

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- (1) No person will cause or allow emissions having an average opacity during any six consecutive minutes of 20 percent or greater from any process emission source, except only the emission of uncombined water.
- (2) On-going compliance monitoring with this requirement shall be determined by the facility owner/operator conducting a weekly survey of visible emissions whenever a process is in operation. A process shall include any equipment which emits air contaminants to the outdoor atmosphere through any conduit, chimney, duct, vent, flue, stack, doorway or opening of any kind. The specific locations at Niagara Refining include emission points #00001, #00002, #0003A, #0003B, #00004, #00005, #00006, #00007, #00008, #00009, #00010, #00011, #00012, #00013 and any other general room ventilation exhaust or building opening through which air contaminants are emitted to the outdoor atmosphere.
- (3) The weekly survey does not require the determination of opacity levels. Rather the survey is used to document the presence or non-presence of visible emissions, excluding water vapor. Visible emission observations shall be performed, as best as possible, at a location to obtain the proper sun angle, background, and line of sight. The observer must be knowledgeable regarding the effects on the visibility of emissions caused by background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor).
- (4) Upon detecting visible emissions, Niagara Refining shall inspect the source and restore operation of the emission unit (including the control device, if any, and the associated capture system) to its normal operation as expeditiously as practicable.
- (5) Records of the visible emission survey shall be maintained to include: (1) a check list of whether visible emissions were observed or not, (2) the date and time of the visible emission observation, (3) the corrective action taken (if any). The records shall be kept on-site and made available to the Department upon request.
- (6) The Department reserves the right to perform or require the performance of a Method 9 opacity evaluation from any process emission source.
- (7) There are no reporting requirements for this condition unless requested by the DEC.

Parameter Monitored: OPACITY

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Upper Permit Limit: 20 percent
Reference Test Method: EPA Method 9
Monitoring Frequency: WEEKLY
Averaging Method: 6-MINUTE AVERAGE (METHOD 9)
Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 1-4: Compliance Demonstration
Effective between the dates of 01/23/2019 and 05/18/2025

Applicable Federal Requirement: 6 NYCRR 212-2.4 (b)

Item 1-4.1:

The Compliance Demonstration activity will be performed for the Facility.

Regulated Contaminant(s):
CAS No: 0NY075-00-0 PARTICULATES

Item 1-4.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL
DEVICE PARAMETERS AS SURROGATE

Monitoring Description:

COMPLIANCE MONITORING FOR PARTICULATE EMISSIONS

- (1) No person will cause or allow emissions of solid particulates that exceed 0.050 grains of particulates per cubic foot of exhaust gas, expressed at standard conditions on a dry gas basis.
- (2) On-going compliance monitoring of the particulate emission limit for each particulate emission source, including but not limited to baghouses and particulate filter cartridges, shall be monitored as stated below. A particulate emission source shall include any equipment which emits particulate emissions to the outdoor atmosphere through any conduit, chimney, duct, vent, flue, stack, or opening of any kind.
 - (a) Each baghouse and particulate filter cartridge must be operated and maintained according to manufacturer specifications.
 - (b) Weekly inspection of any fall-out from the baghouses and filter cartridges shall be completed whenever a process is in operation.
 - (c) Weekly differential pressure measurements of each baghouse which vent to the outside atmosphere shall be completed whenever a process is in normal operation.
 - (d) Differential pressure shall be measured between the inlet and outlet to the dust collector. The dust collectors shall be operated within the differential

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pressure range specified by the manufacturer.

(e) The differential pressure transducer shall be calibrated annually or as required by the manufacturer.

(f) If any visible emissions, particulate fall-out or pressure measurement is recorded outside the manufacturer range, then Niagara Refining shall inspect the source, initiate corrective action, and restore operation of the dust collector and associated capture system to its normal operation as expeditiously as practicable.

(3) Records shall be maintained to include: (i) a weekly log documenting whether any visible emissions or fall-out were observed, (ii) a log of the weekly pressure drop measurements with reference to the manufacturer differential pressure range, (iii) the date and time of the observation or measurement, (iv) corrective action taken (if any), and (v) the cause of any visible emissions, fall-out or pressure measurements outside the manufacturer range (if known). The records shall be kept on-site and be made available to the Department upon request.

(4) At the discretion of the Department, an EPA Method 5 compliance test may be required to demonstrate compliance with the 0.050 grains/dscf emission limit.

Parameter Monitored: PARTICULATES

Upper Permit Limit: 0.050 grains per dscf

Reference Test Method: EPA Method 5

Monitoring Frequency: WEEKLY

Averaging Method: MAXIMUM - NOT TO EXCEED STATED VALUE -
SEE MONITORING DESCRIPTION

Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 3-4: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement: 40CFR 63, Subpart VVVVVV

Item 3-4.1:

The Compliance Demonstration activity will be performed for the Facility.

Regulated Contaminant(s):

CAS No: 0NY510-00-0 40 CFR 63 - TOTAL METAL HAP

Item 3-4.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

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40CFR63 SUBPART VVVVVV APPLICABILITY

Niagara Refining LLC (NR) is applicable to 40 CFR 63 Subpart VVVVVV - NESHAP for Chemical Manufacturing Area Sources.

The NESHAP is applicable to the entire ammonium paratungstate and tungsten oxide production process and all of the process equipment combined comprises a single Chemical Manufacturing Process Unit (CMPU). Additionally, the 400 pound (lb) annual emission rate applicability threshold for process vents in §63.11496 (f) is based upon all metal HAPs, not just those metal HAPs identified in Table 1 of the Subpart.

METAL HAP CONTENT OF RAW MATERIAL

Concentrated wolframite ore is the primary raw material processed at the facility. It is also the raw material which possesses the highest concentration of trace metal HAP impurities that have the potential to be emitted during those processing steps that have air emissions. Manganese is the primary metal HAP impurity in the ore at an average of 2.55%, and a 90th percentile content of 4.71%. When all metal HAPs are considered, the analysis of ore lots used at NR indicates that on average a lot contains 2.69% metal HAPs, and a 90th percentile content is 4.99%.

PROCESS EQUIPMENT WITH POTENTIAL METAL HAP AIR EMISSIONS

As indicated in the NESHAP section §63.11495(a)(1), the various management practices and standards of compliance for process vents in metal HAP service are not applicable to equipment in the CMPU in which the materials are in a liquid solution or other form that will not result in particulate emissions of metal HAP. The only process equipment at the facility with potential emissions of metal HAP particulate are the initial ore loading process, the ore roasting process, and the proposed hammermill process.

PROCESS EQUIPMENT WITHOUT METAL HAP AIR EMISSIONS

The following is a list of other equipment evaluated, and a brief explanation of why the requirements DON'T apply:

Ball Mill - the unit is a wet ball mill. The use of water within the milling process eliminates particulate emissions.

Reaction Tanks – the various reaction tanks all operate with the ore in a slurry form which does not result in particulate emissions.

Filter Press – the desired material from the ore (tungsten) is in solution in the tanks. The solution is

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filtered to remove unwanted impurities including metal HAPs. The resulting wet filter cake is collected for disposal in a landfill. There are no particulate emissions from this process.

Smelter – The smelter is used to process scrap metals with very high tungsten content. The tungsten metal is melted, and the melted metal is poured into water to create a slurry which can be further processed to reclaim the tungsten. No particulate emissions are generated in the smelting process.

Crystallizers, Calciners, and Final Bagging – These processes are either wet, and/or do not contain any metal HAPs.

ANNUAL EMISSION RATE

The NESHAP defines uncontrolled emissions as the “organic HAP process vent emissions or metal HAP process vent emissions as applicable, at the outlet of the last recovery device, if any, and prior to any control device.”

A recovery device means “an individual unit of equipment capable of and normally used for the purpose of recovering organic chemicals or metal-containing chemicals for fuel value (i.e., net positive heating value), use, reuse, or for sale for fuel value, use, or reuse.”

The initial loading process uses a baghouse to collect ore dust during operation. The proposed hammermill will also use a baghouse to collect ore dust generated by the crushing of ore that doesn't meet the particle size specifications of the wet ball mill. The roasting operation uses a cyclone and filter to collect the small amount of dust generated in that process. In each instance, the ore dust collected is reintroduced into the process (i.e., reused). These units meet the definition of recovery devices and are therefore accounted for in the calculation of potential uncontrolled emissions. The roasting process also uses a wet scrubber which reduces the emissions of sulfur dioxide and arsenic oxide. The scrubber is not a recovery device, and therefore the uncontrolled emissions of arsenic from the roasting process do not account for the control by the scrubber.

The combined uncontrolled potential emissions of all metal HAP from the facility, including the proposed hammermill process is 175.7 lb/yr. This potential emission rate is below the 400 lb/yr threshold in §63.11496(f)(2). Therefore, the facility is not subject to the control requirements in Table 4 of the subpart, or the associated monitoring and recordkeeping.

No reporting or recordkeeping is associated with this

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permit condition.

Monitoring Frequency: UPON REQUEST OF REGULATORY AGENCY
Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 3-5: Process Vessel Cover
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement:40CFR 63.11495(a)(1), Subpart VVVVVV

Item 3-5.1:

Each process vessel must be equipped with a cover or lid that must be closed at all times when it is in organic HAP service or metal HAP service, except for manual operations that require access, such as material addition and removal, inspection, sampling and cleaning. This requirement does not apply to process vessels containing only metal HAP that are in a liquid solution or other form that will not result in particulate emissions of metal HAP (e.g., metal HAP that is in ingot, paste, slurry, or moist pellet form or other form).

Condition 3-6: Inspections
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement:40CFR 63.11495(a)(3), Subpart VVVVVV

Item 3-6.1:

The owner or operator must conduct inspections of process vessels and equipment for each chemical manufacturing process unit (CMPU) in organic HAP service or metal HAP service, as specified in paragraphs (i) through (v), to demonstrate compliance with 40 CFR 63.11495(a)(1) and to determine that the process vessels and equipment are sound and free of leaks. Alternatively, except when the subject CMPU contains metal HAP as particulate, inspections may be conducted while the subject process vessels and equipment are in VOC service, provided that leaks can be detected when in VOC service.

(i) Inspections must be conducted at least quarterly.

(ii) For these inspections, detection methods incorporating sight, sound, or smell are acceptable. Indications of a leak identified using such methods constitute a leak unless the owner or operator demonstrates that the indications of a leak are due to a condition other than loss of HAP. If indications of a leak are determined not to be HAP in one quarterly monitoring period, the owner or operator must still perform the inspection and demonstration in the next quarterly monitoring period.

(iii) As an alternative to conducting inspections, as specified in paragraph (ii), the owner or operator may use Method 21 of 40 CFR part 60, appendix A-7, with a leak definition of 500 ppmv to detect leaks. The owner or operator may also use Method 21 with a leak definition of 500 ppmv to determine if indications of a leak identified during an inspection conducted in accordance with paragraph (ii) are due to a condition other than loss of HAP. The procedures in this paragraph may not be used as an alternative to the inspection required by paragraph (ii) for process vessels that contain metal HAP as particulate.

(iv) Inspections must be conducted while the subject CMPU is operating.

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(v) No inspection is required in a calendar quarter during which the subject CMPU does not operate for the entire calendar quarter and is not in organic HAP service or metal HAP service. If the CMPU operates at all during a calendar quarter, an inspection is required.

Condition 3-7: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement:40CFR 63.11495(a)(4), Subpart VVVVVV

Item 3-7.1:

The Compliance Demonstration activity will be performed for the Facility.

Item 3-7.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

The owner or operator must repair any leak within 15 calendar days after detection of the leak, or document the reason for any delay of repair. For the purposes of this paragraph, a leak will be considered “repaired” if a condition specified in paragraph (i), (ii), or (iii) is met.

(i) The visual, audible, olfactory, or other indications of a leak to the atmosphere have been eliminated, or

(ii) No bubbles are observed at potential leak sites during a leak check using soap solution, or

(iii) The system will hold a test pressure.

In the event there is a delay of repair, semiannual compliance reports are required as specified in 40 CFR 63.11501(d)

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 3-8: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement:40CFR 63.11495(a)(5), Subpart VVVVVV

Item 3-8.1:

The Compliance Demonstration activity will be performed for the Facility.

Item 3-8.2:

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Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

The owner or operator must keep records of the dates and results of each inspection event, the dates of equipment repairs, and, if applicable, the reasons for any delay in repair.

In the event there is a delay of repair, semiannual compliance reports are required as specified in 40 CFR 63.11501(d)

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 3-9: General Duty

Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement:40CFR 63.11495(d), Subpart VVVVVV

Item 3-9.1:

At all times, the owner or operator must operate and maintain any affected chemical manufacturing process unit (CMPU), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator, which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the CMPU.

Condition 3-10: Compliance Demonstration

Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement:40CFR 63.11496(f)(1), Subpart VVVVVV

Item 3-10.1:

The Compliance Demonstration activity will be performed for the Facility.

Regulated Contaminant(s):

CAS No: 0NY510-00-0 40 CFR 63 - TOTAL METAL HAP

Item 3-10.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

The owner or operator must determine the sum of metal HAP emissions from all metal HAP process vents within a chemical manufacturing process unit (CMPU) subject to

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subpart VVVVVV, except he/she is not required to determine the annual emissions if the control of the metal HAP process vents within a CMPU is in accordance with Table 4 to subpart VVVVVV or if he/she determines the total metal HAP usage in the process unit is less than 400 lb/yr. To determine the mass emission rate, the owner or operator may use process knowledge, engineering assessment, or test data. The owner or operator must keep records of the emissions calculations.

The requirements of this paragraph do not apply to metal HAP process vents from CMPU containing only metal HAP that are in a liquid solution or other form that will not result in particulate emissions of metal HAP (e.g., metal HAP that is in ingot, paste, slurry, or moist pellet form or other form).

As per 40 CFR 63.11501(c), owners or operators must maintain files of all information required by this subpart for at least 5 years following the date of each occurrence according to the requirements in 40 CFR 63.10(b)(1).

As per 40 CFR 63.11501(d), semiannual compliance reports are required for all reporting periods in which any of the events listed in 40 CFR 63.11501(d)(1) through (8) occur.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 3-11: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement: 40CFR 63.11496(f)(2), Subpart VVVVVV

Item 3-11.1:

The Compliance Demonstration activity will be performed for the Facility.

Regulated Contaminant(s):

CAS No: 0NY510-00-0 40 CFR 63 - TOTAL METAL HAP

Item 3-11.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

An owner or operator with a current estimate of total uncontrolled metal HAP emissions from a chemical manufacturing process unit (CMPU) subject to subpart VVVVVV which are less than 400 lb/yr must keep records of either the number of batches operated per month (batch vents) or the process operating hours (continuous vents).

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Also, the owner or operator must reevaluate the total emissions before he/she makes any process or operational change that affects emissions of metal HAP. If projected emissions increase to 400 lb/yr or more, then the owner or operator must be in compliance with one of the options for metal HAP process vents in Table 4 of subpart VVVVVV upon initiating operation under the new operating conditions. The owner or operator must keep records of all recalculated emissions determinations.

The requirements of this paragraph do not apply to metal HAP process vents from CMPI containing only metal HAP that are in a liquid solution or other form that will not result in particulate emissions of metal HAP (e.g., metal HAP that is in ingot, paste, slurry, or moist pellet form or other form).

As per 40 CFR 63.11501(c), owners or operators must maintain files of all information required by this subpart for at least 5 years following the date of each occurrence according to the requirements in §63.10(b)(1).

As per 40 CFR 63.11501(d), semiannual compliance reports are required for all reporting periods in which any of the events listed in 40 CFR 63.11501(d)(1) through (8) occur.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 3-12: General Provisions

Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement: 40CFR 63.11501(a), Subpart VVVVVV

Item 3-12.1:

The owner or operator must meet the requirements of the General Provisions in 40 CFR part 63, subpart A, as shown in Table 9 of subpart VVVVVV. The General Provisions in other parts do not apply except when a requirement in an overlapping standard, which the owner or operator determined is at least as stringent as subpart VVVVVV and with which he/she has opted to comply, requires compliance with general provisions in another part.

Condition 3-13: Notification of Compliance Status

Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement: 40CFR 63.11501(b), Subpart VVVVVV

Item 3-13.1:

The notification of compliance status required by 40 CFR 63.9(h) must include the following additional information as applicable:

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- (1) This certification of compliance, signed by a responsible official:
 - (i) “This facility complies with the management practices in 40 CFR 63.11495.”
 - (ii) “This facility complies with the requirements in 40 CFR 63.11496 for HAP emissions from process vents.”
 - (iii) “This facility complies with the requirements in 40 CFR 63.11496 and 63.11497 for surge control vessels, bottoms receivers, and storage tanks.”
 - (iv) “This facility complies with the requirements in 40 CFR 63.11498 to treat wastewater streams.”
 - (v) “This facility complies with the requirements in 40 CFR 63.11499 for heat exchange systems.”
- (2) An owner or operator that complies with the alternative standard as specified in Table 2 of subpart VVVVVV or Table 3 of subpart VVVVVV, include the information specified in 40 CFR 63.1258(b)(5), as applicable.
- (3) An owner or operator that establishes an operating limit for a parameter that will not be monitored continuously in accordance with 40 CFR 63.11496(g)(4) and 63.2450(k)(6), provide the information as specified in 40 CFR 63.11496(g)(4) and 63.2450(k)(6).
- (4) A list of all transferred liquids that are reactive or resinous materials, as defined in 40 CFR 63.11502(b).
- (5) An owner or operator that complies with provisions in an overlapping rule in accordance with 40 CFR 63.11500, identify the affected chemical manufacturing process unit, heat exchange system, and/or wastewater system; provide a list of the specific provisions with which he/she will comply; and demonstrate that the provisions with which he/she will comply are at least as stringent as the otherwise applicable requirements, including monitoring, recordkeeping, and reporting requirements, in this subpart VVVVVV.

Condition 3-14: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement: 40CFR 63.11501(c)(1), Subpart VVVVVV

Item 3-14.1:

The Compliance Demonstration activity will be performed for the Facility.

Item 3-14.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

For each chemical manufacturing process unit (CMPU) subject to subpart VVVVVV the owner or operator must keep the records specified in paragraphs (i) through (viii), as applicable.

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(i) Records of management practice inspections, repairs, and reasons for any delay of repair, as specified in 40 CFR 63.11495(a)(5).

(v) Records of metal HAP emission calculations as specified in 40 CFR 63.11496(f)(1) and (2). If total uncontrolled metal HAP process vent emissions from a CMPU subject to this subpart are estimated to be less than 400 lb/yr, also keep records of either the number of batches per month or operating hours, as specified in 40 CFR 63.11496(f)(2).

(vii) Records of the date, time, and duration of each malfunction of operation of process equipment, control devices, recovery devices, or continuous monitoring systems used to comply with this subpart that causes a failure to meet a standard. The record must include a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over the standard, and a description of the method used to estimate the emissions.

(viii) Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63.11495(d), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

As per 40 CFR 63.11501(d), semiannual compliance reports are required for all reporting periods in which any of the events listed in 40 CFR 63.11501(d)(1) through (8) occur.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 3-15: Semiannual Compliance Reports
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement: 40CFR 63.11501(d), Subpart VVVVVV

Item 3-15.1:

The owner or operator must submit semiannual compliance reports that contain the information specified in paragraphs (1) through (7), as applicable. Reports are required only for semiannual periods during which the owner or operator experienced any of the events described in paragraphs (1) through (8).

(1) Deviations. The owner or operator must clearly identify any deviation from the requirements of this subpart.

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- (2) Delay of repair for a large heat exchange system. The owner or operator must include the information specified in 40 CFR 63.104(f)(2) each time he/she invokes the delay of repair provisions for a heat exchange system with a cooling water flow rate equal to or greater than 8,000 gal/min.
- (3) Delay of leak repair. The owner or operator must provide the following information for each delay of leak repair beyond 15 days for any process equipment, storage tank, surge control vessel, bottoms receiver, and each delay of leak repair beyond 45 days for any heat exchange system with a cooling water flow rate less than 8,000 gal/min: information on the date the leak was identified, the reason for the delay in repair, and the date the leak was repaired.
- (4) Process change. The owner or operator must report each process change that affects a compliance determination and submit a new certification of compliance with the applicable requirements in accordance with the procedures specified in 40 CFR 63.15001(b).
- (5) Data for the alternative standard. If the owner or operator complies with the alternative standard, as specified in Table 2 of subpart VVVVVV or Table 3 of subpart VVVVVV, report the information required in 40 CFR 63.1258(b)(5).
- (6) Overlapping rule requirements. Report any changes in the overlapping provisions with which the owner or operator complies.
- (7) Reactive and resinous materials. Report any transfer of liquids that are reactive or resinous materials, as defined in 40 CFR 63.11502(b), and not included in the notification of compliance status.
- (8) Malfunctions. If a malfunction occurred during the reporting period, the report must include the number of instances of malfunctions that caused emissions in excess of a standard. For each malfunction that caused emissions in excess of a standard, the report must include a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over the standard, and a description of the method used to estimate the emissions. The report must also include a description of actions the owner or operator took during a malfunction of an affected source to minimize emissions in accordance with 40 CFR 63.11495(d), including actions taken to correct a malfunction.

****** Emission Unit Level ******

Condition 3-16: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement: 6 NYCRR 200.7

Item 3-16.1:

The Compliance Demonstration activity will be performed for:

Emission Unit: U-00APT Emission Point: 00002

Regulated Contaminant(s):

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CAS No: 007664-41-7 AMMONIA

Item 3-16.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

DEMONSTRATING EFFECTIVE OPERATION
AMMONIA SCRUBBER SYSTEM - EP00002

An ammonia scrubber (EP00002) is used to reduce emissions from storage and process tanks that contain various percentages and amounts of ammonia. The facility tested emissions before the scrubber which was then used in the Part 212 compliance evaluation. The purpose of testing the inlet was to show a control device was not required. The facility does not intend to remove the device and continues operation of the equipment.

As per 6NYCRR Part 200.7 – Maintenance of Equipment, any person who owns or operates an air contamination source which is equipped with an emission control device shall operate such device and keep it in a satisfactory state of maintenance and repair in accordance with ordinary and necessary practices, standards and procedures, inclusive of manufacturer's specifications, required to operate such device effectively. In order to demonstrate proper operation of the ammonia scrubber, complete the following activities:

- (1) Operate and maintain a temperature, pressure and pH measurement device for the ammonia wet scrubber system, EP00002.
- (2) Monitor and collect data at all times that the affected source is operating, except for malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments).
- (3) When the pH in the “lead” tank reaches a high value of three (3) standard units, it is time to replace the acid in the tank. The ‘lag’ tank becomes the ‘lead’ tank.
- (4) Ensure the alarms for excess pH and temperature are operational.
- (5) Niagara Refining has equipment alarms to alert the operators when a parameter is operating outside the normal range. The alarm is used to initiate an investigation of

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the source and complete any corrective action prior to a potential malfunction.

(6) Maintain the two stage scrubbing system in accordance with manufacturer specifications.

(7) Keep records of all inspection and monitoring data. Keep records of the occurrence and duration of each malfunction of the air pollution control and monitoring equipment. Keep records of actions taken during periods of a malfunction, including corrective actions to restore the malfunctioning air pollution control, or monitoring equipment to its normal or usual manner of operation. Keep each record for 5 years following the date of each recorded action.

(8) Submit an annual summary report of all malfunction occurrences no later than January 30 each calendar year.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Reporting Requirements: ANNUALLY (CALENDAR)

Reports due 30 days after the reporting period.

The initial report is due 1/30/2022.

Subsequent reports are due every 12 calendar month(s).

Condition 3-17: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable Federal Requirement:6 NYCRR 200.6

Item 3-17.1:

The Compliance Demonstration activity will be performed for:

| | |
|------------------------|------------------------|
| Emission Unit: U-00APT | Emission Point: 00013 |
| Process: 009 | Emission Source: CATOX |

| | |
|---------------------------|------------------|
| Regulated Contaminant(s): | |
| CAS No: 010102-44-0 | NITROGEN DIOXIDE |

Item 3-17.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING

Monitoring Description:

AMMONIA DECOMPOSITION CATALYTIC OXIDIZER
 NITROGEN DIOXIDE EMISSIONS
 NATIONAL AMBIENT AIR QUALITY STANDARD

(1) A catalytic oxidizer is used to reduce ammonia emissions from the ammonia decomposition system that

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strips ammonia from process wastewater and transfers the ammonia to an airstream. During this process there is the potential for the formation of Nitrogen Dioxide (NO₂) as a result of the chemical reaction.

(2) To demonstrate compliance with the 1-hr NO₂ National Ambient Air Quality Standard (NAAQS) , a performance test of the catalytic oxidizer shall be completed once per permit term. The performance test must be conducted at the maximum normal operating process load. The method used to measure NO₂ shall be approved by the Department. A stack test protocol shall be submitted for review at least 9 months prior to the permit expiration date.

(3) An ambient impact analysis using the measured outlet NO₂ concentrations from the performance test and all other NO₂ emission sources at the facility shall be completed to demonstrate compliance with the 1-hr NO₂ NAAQS.

(4) The results of the performance test report and impact analysis shall be submitted within 60 days of completing the stack test.

(5) At the discretion of the department, additional performance testing and a revised impact evaluation may be required prior to the permit renewal if visible emissions are detected and verified to be coming from the emission point and impacting the neighborhood.

Parameter Monitored: NITROGEN DIOXIDE

Upper Permit Limit: 188 micrograms per cubic meter

Reference Test Method: DAR-10, NAAQS

Monitoring Frequency: ONCE DURING THE TERM OF THE PERMIT

Averaging Method: MAXIMUM - NOT TO EXCEED STATED VALUE -
SEE MONITORING DESCRIPTION

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

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STATE ONLY ENFORCEABLE CONDITIONS****** Facility Level ********NOTIFICATION OF GENERAL PERMITTEE OBLIGATIONS**

This section contains terms and conditions which are not federally enforceable. Permittees may also have other obligations under regulations of general applicability

Item A: Emergency Defense - 6 NYCRR 201-1.5

An emergency, as defined in 6 NYCRR subpart 201-2, constitutes an affirmative defense to penalties sought in an enforcement action brought by the department for noncompliance with emissions limitations or permit conditions for all facilities in New York State.

(a) The affirmative defense of emergency shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) an emergency occurred and that the facility owner or operator can identify the cause(s) of the emergency;

(2) the equipment at the facility was being properly operated and maintained;

(3) during the period of the emergency the facility owner or operator took all reasonable steps to minimize the levels of emissions that exceeded the emission standards, or other requirements in the permit; and

(4) the facility owner or operator notified the department within two working days after the event occurred. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and any corrective actions taken.

(b) In any enforcement proceeding, the facility owner or operator seeking to establish the occurrence of an emergency has the burden of proof.

(c) This provision is in addition to any emergency or malfunction provision contained in any applicable requirement.

Item B: Public Access to Recordkeeping for Facilities With State Facility Permits - 6 NYCRR 201-1.10 (a)

Where facility owners and/or operators keep records pursuant to compliance with the requirements of 6 NYCRR Subpart 201-5.4, and/or the emission capping requirements of 6 NYCRR Subpart 201-7, the Department will make such records available to the public upon request in accordance

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with 6 NYCRR Part 616 - Public Access to Records.
Facility owners and/or operators must submit the records required to comply with the request within sixty working days of written notification by the Department.

Item C: **General Provisions for State Enforceable Permit Terms and Condition - 6 NYCRR Part 201-5**

Any person who owns and/or operates stationary sources shall operate and maintain all emission units and any required emission control devices in compliance with all applicable Parts of this Chapter and existing laws, and shall operate the facility in accordance with all criteria, emission limits, terms, conditions, and standards in this permit. Failure of such person to properly operate and maintain the effectiveness of such emission units and emission control devices may be sufficient reason for the Department to revoke or deny a permit.

The owner or operator of the permitted facility must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility regulated by this Subpart, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations or law.

STATE ONLY APPLICABLE REQUIREMENTS

The following conditions are state only enforceable.

Condition 14: Contaminant List

Effective between the dates of 05/19/2015 and 05/18/2025

Applicable State Requirement:ECL 19-0301

Item 14.1:

Emissions of the following contaminants are subject to contaminant specific requirements in this permit(emission limits, control requirements or compliance monitoring conditions).

CAS No: 001327-53-3
Name: ARSENIC TRIOXIDE

CAS No: 007446-09-5
Name: SULFUR DIOXIDE

CAS No: 007664-41-7
Name: AMMONIA

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CAS No: 007783-06-4
Name: HYDROGEN SULFIDE

CAS No: 010102-44-0
Name: NITROGEN DIOXIDE

CAS No: 0NY075-00-0
Name: PARTICULATES

CAS No: 0NY510-00-0
Name: 40 CFR 63 - TOTAL METAL HAP

Condition 3-18: Malfunctions and Start-up/Shutdown Activities
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable State Requirement: 6 NYCRR 201-1.4

Replaces Condition(s) 15

Item 3-18.1:

(a) The facility owner or operator shall take all necessary and appropriate actions to prevent the emission of air pollutants that result in contravention of any applicable emission standard during periods of start-up, shutdown, or malfunction.

(b) The facility owner or operator shall compile and maintain records of all equipment maintenance and start-up/shutdown activities when they are expected to result in an exceedance of any applicable emission standard, and shall submit a report of such activities to the department when required by a permit condition or upon request by the department. Such reports shall state whether an exceedance occurred and if it was unavoidable, include the time, frequency and duration of the exceedance, and an estimate of the emission rates of any air contaminants released. Such records shall be maintained for a period of at least five years and made available for review to department representatives upon request. Facility owners or operators subject to continuous monitoring and quarterly reporting requirements need not submit additional reports of exceedances to the department.

(c) In the event that air contaminant emissions exceed any applicable emission standard due to a malfunction, the facility owner or operator shall notify the department as soon as possible during normal working hours, but not later than two working days after becoming aware that the malfunction occurred. In addition, the facility owner or operator shall compile and maintain a record of all malfunctions. Such records shall be maintained at the facility for a period of at least five years and must be made available to the department upon request. When requested by the department, the facility owner or operator shall submit a written report to the department describing the malfunction, the corrective action taken, the air contaminants emitted, and the resulting emission rates and/or opacity.

(d) The department may also require the facility owner or operator to include, in reports described under Subdivisions (b) and (c) of this Section, an estimate of the maximum ground level concentration of each air contaminant emitted and the effect of such emissions.

(e) A violation of any applicable emission standard resulting from start-up, shutdown, or malfunction conditions at a permitted or registered facility may not be subject to an enforcement action by the department and/or penalty if the department determines, in its sole discretion, that

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such a violation was unavoidable. The actions and recordkeeping and reporting requirements listed above must be adhered to in such circumstances.

Condition 16: Emission Unit Definition
Effective between the dates of 05/19/2015 and 05/18/2025

Applicable State Requirement:6 NYCRR Subpart 201-5

Item 16.1(From Mod 3):

The facility is authorized to perform regulated processes under this permit for:

Emission Unit: U-00APT

Emission Unit Description:

Emission Unit U-00APT includes the production of ammonium paratungstate (APT) and tungsten oxide (WO₃). The APT and WO₃ production process begins with processing either concentrated tungsten containing ore or the smelting of tungsten scrap. Concentrated scheelite (wolframite) ore is milled prior to introduction to a digester where a sodium tungstate solution is produced. Less refined ore (i.e. Russian Ore) requires additional processing in a roaster prior to introduction to the digester.

Regardless of whether it is produced via ore processing, or smelting of scrap, the sodium tungstate solution then undergoes a series of steps including filtration, purification, and pH adjustment to remove impurities. The intermediate material then undergoes an ion exchange process which results in an ammonium tungstate solution. The ammonium tungstate solution is then introduced into a crystallizer, where the water and some ammonia are driven off resulting in ammonium paratungstate powder, one of the final products. The APT can then be further refined in a calcining furnace which drives off the ammonia to produce tungsten oxide, the second final product. A third final product produced includes an ultra-pure tungsten oxide.

Ammonia is an essential component of the refining process, therefore, the facility uses two ammonia recovery systems (ARS) to recover ammonia that is liberated in the crystallization and calcining processes for reuse.

Building(s): APT

Condition 3-19: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable State Requirement:6 NYCRR Subpart 201-5

Item 3-19.1:

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The Compliance Demonstration activity will be performed for the Facility.

Item 3-19.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL
DEVICE PARAMETERS AS SURROGATE

Monitoring Description:

PRODUCTION MONITORING

(1) Monitor and maintain records of the total combined production of ammonium paratungstate (APT), tungsten oxide and ultra-pure tungsten oxide on a rolling 12-month total basis. Records shall be maintained on-site for five years and be made available upon request.

(2) The maximum projected permitted emission rates and ambient impact evaluations are based on a combined total production of APT, tungsten oxide and ultra-pure tungsten oxide of 2,750 tons per year. If total production exceeds 2,750 tons per year, submit a report documenting whether the increased emissions violate any applicable regulations or result in ambient impacts.

(3) The report shall be submitted to the department within 30 days of the first 12-month production exceedance of 2,750 tons per year.

Parameter Monitored: PRODUCT

Upper Permit Limit: 2750 tons per year

Monitoring Frequency: MONTHLY

Averaging Method: ANNUAL TOTAL ROLLED MONTHLY

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

**Condition 17: Renewal deadlines for state facility permits
Effective between the dates of 05/19/2015 and 05/18/2025**

Applicable State Requirement:6 NYCRR 201-5.2 (c)

Item 17.1:

The owner or operator of a facility having an issued state facility permit shall submit a complete application at least 180 days, but not more than eighteen months, prior to the date of permit expiration for permit renewal purposes.

**Condition 3-20: CLCPA Applicability
Effective between the dates of 03/08/2021 and 05/18/2025**

Applicable State Requirement:6 NYCRR 201-5.3 (c)

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Item 3-20.1:

Pursuant to The New York State Climate Leadership and Community Protection Act (CLCPA) and Article 75 of the Environmental Conservation Law, emission sources shall comply with regulations to be promulgated by the Department to ensure that by 2030 statewide greenhouse gas emissions are reduced by 40% of 1990 levels, and by 2050 statewide greenhouse gas emissions are reduced by 85% of 1990 levels.

Condition 18: Compliance Demonstration
Effective between the dates of 05/19/2015 and 05/18/2025

Applicable State Requirement:6 NYCRR 201-5.3 (c)

Item 18.1:

The Compliance Demonstration activity will be performed for the Facility.

Item 18.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

Any reports or submissions required by this permit shall be submitted to the Regional Air Pollution Control Engineer (RAPCE) at the following address:

Division of Air Resources
NYS Dept. of Environmental Conservation
Region 9
270 Michigan Ave.
Buffalo, NY 14203

Reporting Requirements: ANNUALLY (CALENDAR)

Reports due 30 days after the reporting period.

The initial report is due 1/30/2016.

Subsequent reports are due every 12 calendar month(s).

Condition 2: Air pollution prohibited
Effective between the dates of 05/19/2015 and 05/18/2025

Applicable State Requirement:6 NYCRR 211.1

Item 2.1:

No person shall cause or allow emissions of air contaminants to the outdoor atmosphere of such quantity, characteristic or duration which are injurious to human, plant or animal life or to property, or which unreasonably interfere with the comfortable enjoyment of life or property. Notwithstanding the existence of specific air quality standards or emission limits, this prohibition applies, but is not limited to, any particulate, fume, gas, mist, odor, smoke, vapor, pollen, toxic or deleterious emission, either alone or in combination with others.

Condition 1-14: Compliance Demonstration
Effective between the dates of 01/23/2019 and 05/18/2025

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Applicable State Requirement:6 NYCRR 211.1

Item 1-14.1:

The Compliance Demonstration activity will be performed for the Facility.

Item 1-14.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

AIR POLLUTION PROHIBITED

(1) Odors from facility process operations and particulate emissions from truck traffic, storage piles, transfer of materials, or other facility operations cannot create a nuisance or exceed ambient air quality standards.

(2) Niagara Refining shall implement best management practices to reduce the potential impact of emissions on ambient air quality, the environment and human health. Such measures may include, but are not limited to, increased emission controls or monitoring of facility process operations, paving dirt roadways, installing a tire wash for trucks traveling on dirt roads, sweeping and cleaning paved areas, and installation of windrows.

(3) In the event odors or particulate emissions are determined by the Department to be causing a nuisance to the nearby residential community, Niagara Refining shall undertake a program of assessment and remediation upon request.

(4) Niagara Refining shall submit a written report of the findings within seven (7) calendar days.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

****** Emission Unit Level ******

**Condition 20: Emission Point Definition By Emission Unit
Effective between the dates of 05/19/2015 and 05/18/2025**

Applicable State Requirement:6 NYCRR Subpart 201-5

Item 20.1(From Mod 3):

The following emission points are included in this permit for the cited Emission Unit:

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Emission Unit: U-00APT

Emission Point: 00001
 Height (ft.): 100 Diameter (in.): 18
 NYTMN (km.): 4757.198 NYTME (km.): 198.494 Building: APT

Emission Point: 00002
 Height (ft.): 80 Diameter (in.): 6
 NYTMN (km.): 4757.198 NYTME (km.): 198.494

Emission Point: 00010
 Height (ft.): 75 Diameter (in.): 10
 NYTMN (km.): 4757.198 NYTME (km.): 198.494 Building: APT

Emission Point: 00013
 Height (ft.): 30 Diameter (in.): 19
 NYTMN (km.): 4757.198 NYTME (km.): 198.494 Building: APT

Emission Point: 00004
 Height (ft.): 58 Diameter (in.): 3
 NYTMN (km.): 4757.198 NYTME (km.): 198.494 Building: APT

Emission Point: 00005
 Height (ft.): 58 Diameter (in.): 6
 NYTMN (km.): 4757.198 NYTME (km.): 198.494 Building: APT

Emission Point: 00006
 Height (ft.): 58 Diameter (in.): 6
 NYTMN (km.): 4757.198 NYTME (km.): 198.494 Building: APT

Emission Point: 00007
 Height (ft.): 58 Diameter (in.): 6
 NYTMN (km.): 4757.198 NYTME (km.): 198.494 Building: APT

Emission Point: 00008
 Height (ft.): 58 Length (in.): 18 Width (in.): 12
 NYTMN (km.): 4757.198 NYTME (km.): 198.494 Building: APT

Emission Point: 00009
 Height (ft.): 58 Length (in.): 18 Width (in.): 12
 NYTMN (km.): 4757.198 NYTME (km.): 198.494 Building: APT

Emission Point: 00011
 Height (ft.): 80 Diameter (in.): 2
 NYTMN (km.): 4757.198 NYTME (km.): 198.494 Building: APT

Emission Point: 00012
 Height (ft.): 80 Diameter (in.): 2
 NYTMN (km.): 4757.198 NYTME (km.): 198.494 Building: APT

Emission Point: 0003A

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Height (ft.): 58 Diameter (in.): 2
 NYTMN (km.): 4757.198 NYTME (km.): 198.494 Building: APT

Emission Point: 0003B
 Height (ft.): 58 Diameter (in.): 2
 NYTMN (km.): 4757.198 NYTME (km.): 198.494 Building: APT

Condition 21: Process Definition By Emission Unit
Effective between the dates of 05/19/2015 and 05/18/2025

Applicable State Requirement:6 NYCRR Subpart 201-5

Item 21.1(From Mod 3):

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: U-00APT
 Process: 002 Source Classification Code: 3-05-150-02

Process Description:

Process 002 includes a purification process. Sodium tungstate filtrate solution containing soluble impurities is transferred into purification tanks where chemicals including magnesium sulfate, sodium sulfide, 20% sulfuric acid and NH3 scrubber solution are added. The pH of the solution remains slightly alkaline as silicone containing compounds are precipitated and then filtered out. Filtrate is collected and transferred to the pH adjustment tanks where dilution water and more 20% sulfuric acid are added. The key purpose of pH adjustment is to precipitate virtually all of the molybdenum present as the pH is lowered to approximately 3.0. At this pH a reaction takes place which results in the release of hydrogen sulfide and some sulfur dioxide. These vapors discharge to a hydrogen sulfide scrubber.

The hydrogen sulfide scrubber system is designed to eliminate 99 percent of the hydrogen sulfide from the pH adjustment reaction. Hydrogen sulfide itself is acidic and will react with a base. The incoming hydrogen sulfide gas is scrubbed in a packed tower with a solution containing 20% sodium hydroxide (caustic soda) and 12.5% sodium hypochlorite. The tower is maintained at a pH above neutral via a pH probe, transmitter, controller and control valve. Sodium hypochlorite is added to the mix via an Oxidation Reduction Potential (ORP) probe, transmitter, controller and control valve. The probe will maintain a minimum of 600 millivolts of potential or approximately 8 mg/l of free chlorine to react with sodium sulfide. Sodium sulfate and sodium chloride salts are produced and discharged to the Buffalo Sewer Authority.

Emission Source/Control: 00017 - Control
 Control Type: GAS SCRUBBER (GENERAL, NOT CLASSIFIED)

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Emission Source/Control: 521VC - Control
Control Type: VENT CONDENSER

Emission Source/Control: 522VC - Control
Control Type: VENT CONDENSER

Emission Source/Control: 00056 - Process

Emission Source/Control: 00521 - Process

Emission Source/Control: 00522 - Process

Emission Source/Control: 00571 - Process

Emission Source/Control: 00572 - Process

Emission Source/Control: 00573 - Process

Emission Source/Control: 00621 - Process

Emission Source/Control: 00671 - Process

Emission Source/Control: 00672 - Process

Emission Source/Control: 00673 - Process

Emission Source/Control: IONEX - Process

Item 21.2(From Mod 3):

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: U-00APT

Process: 003

Source Classification Code: 3-05-150-02

Process Description:

Process 003 includes the crystallization process. Aqueous ammonia tungstate solution, containing excess unreacted ammonium hydroxide, is fed to a batch operated evaporator-crystallizer system. Here ammonium paratungstate (APT) is precipitated and recovered as wet cake. The APT cake is then dried. All of the units are heated and vaporize the water and ammonia present. Some ammonia is released during the crystallization as ammonium tungstate converts to crystallized APT. Solution containing crystallized APT is filtered through a vacuum filter. Dewatered ammonium paratungstate crystals are then dried at 100 to 150 degrees Celcius in a furnace. Furthermore, at times, the facility plans to make tungsten oxide (WO3) instead of APT through additional heating in a calcining furnace. The production of WO3 drives off the combined ammonia and results in the liberation of additional ammonia. Ammonia from this process is vented

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to a dilute ammonia recovery process.

Ammonia (NH₃) Recovery Process Description

Ammonia is used at Niagara Refining to pull tungsten containing molecules off a resin bed, in the production process of tungsten oxide. When the ammonia has done its job, the excess free ammonia is “boiled” off in the crystallizer and recovered. During crystallization, as the free ammonia is boiled off, a chemical reaction occurs to form Ammonium Paratungstate or APT. During this reaction, ammonia is also formed. A subsequent process, in which crystalline APT is calcined to form tungsten oxide also forms ammonia.

These two sources of ammonia together with the free ammonia boiled off from the crystallizer are captured for reuse. The system that does this process is called the Ammonia Recovery System or ARS.

The ARS consists of a purified water spray, a heat recovering heat exchanger, a condenser and a scrubber. The ammonia from the crystallizer goes through a spray bank where purified water helps absorb the ammonia during the early stages of the crystallization. From there, the ammonia/water stream enters a heat recovery heat exchanger that helps cool the ammonia/water stream and heats the plant hot water system. The stream then combines with the calciner ammonia, and then enters a large condenser. All the water condenses and most of the ammonia is absorbed in the water. This stream (now called aqua ammonia) is later strengthened back to its original strength with fresh commercial aqua ammonia.

Any ammonia that does not absorb into the water at the condenser is sent to a scrubber (packed tower) where it is absorbed by purified water. This weak stream of aqua ammonia is also reused in the process and can be strengthened back to usable strength with commercial aqua ammonia.

Emission Source/Control: 00015 - Control
Control Type: AMMONIA SCRUBBING

Emission Source/Control: 08101 - Control
Control Type: PARTICULATE TRAP

Emission Source/Control: 08102 - Control
Control Type: PARTICULATE TRAP

Emission Source/Control: 841ME - Control
Control Type: MIST ELIMINATOR

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Emission Source/Control: 842ME - Control
Control Type: MIST ELIMINATOR

Emission Source/Control: 00841 - Process

Emission Source/Control: 00842 - Process

Emission Source/Control: 00851 - Process

Emission Source/Control: 00852 - Process

Emission Source/Control: 00891 - Process

Emission Source/Control: 00892 - Process

Emission Source/Control: 00ARS - Process

Item 21.3(From Mod 3):

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: U-00APT

Process: 004

Source Classification Code: 3-05-999-99

Process Description:

Process 004 includes the gaseous ammonia scrubbing system. Niagara Refining's ammonium paratungstate production operation includes a two-stage scrubbing system to remove gaseous ammonia vented from various process tanks containing aqueous solutions. Most of the ammonia emissions occur during transfers of vessel contents.

The primary vent system consists of a common manifolded vent header purged with dilution air. Vents for three of the tanks, which normally contain liquors higher in ammonia content, are separately manifolded and padded with nitrogen to eliminate flammability potential. This manifold is also tied into the primary vent system.

Sulfuric acid is used as the scrubbing media. This is ideal since it reacts very rapidly with ammonia and exhibits no vapor pressure. Product formed is soluble ammonium sulfate. Pumps, one for each system, recirculate acidic liquor over a venturi eductor where the gas and liquid intimately contact.

The scrubber system utilizes venturi eductors not only to achieve vapor-liquid contacting but also to pull the dilution air and ammonia vapors through the common vent system. Gases exiting the first scrubber system are drawn into the second scrubber where further contacting takes

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place. The second scrubber will always be richer in acid content than the first. When the first scrubber is spent, valves are switched to reverse the scrubbing order. The No.1 scrubber is pumped out, re-charged with dilute sulfuric acid to become the No.2 scrubber. The previous No.2 scrubber becomes No.1.

Vent pipes from the scrubber tanks, only one open at any given time, combine into a single vent pipe and direct dilution air containing moisture and small amounts of unneutralized ammonia to the atmosphere.

Emission Source/Control: 00018 - Control
Control Type: AMMONIA SCRUBBING

Emission Source/Control: 00491 - Process

Emission Source/Control: 00492 - Process

Emission Source/Control: 00711 - Process

Emission Source/Control: 00870 - Process

Emission Source/Control: 00925 - Process

Emission Source/Control: 00926 - Process

Emission Source/Control: 00927 - Process

Emission Source/Control: 07101 - Process

Emission Source/Control: 07141 - Process

Emission Source/Control: 09212 - Process

Emission Source/Control: 09214 - Process

Item 21.4(From Mod 3):

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: U-00APT

Process: 006

Source Classification Code: 3-05-150-02

Process Description:

Process 006 includes the ore roasting process. Ore must be preprocessed to remove organics and sulfur before it can be used in the normal process. This ore is introduced into a roaster heats the material to 700 degrees Celsius. When combined with oxygen in the air feed to the roaster, the organics react to make carbon dioxide and the sulfur reacts to produce sulfur dioxide. There is also a small amount of arsenic and phosphorus that oxidizes to make arsenic trioxide and phosphorus pentoxide. All the gases

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are first sent to a cyclone and a ceramic filter to separate any ore dust that has carried through. The ore dust is then recycled back into the roaster. The gases go to a scrubber system. The main scrubber is run with sodium hydroxide as the scrubbing liquor, with the pH being controlled slightly over neutral. The sulfur dioxide reacts with sodium hydroxide to form sodium sulfite, which is sent to the POTW. Before gases leave the system and go to an emission point, it travels through a HEPA filter to filter out any remaining arsenic trioxide particulates.

Emission Source/Control: 00062 - Control
Control Type: SINGLE CYCLONE

Emission Source/Control: 00063 - Control
Control Type: FABRIC FILTER

Emission Source/Control: 00064 - Control
Control Type: QUENCH UNIT

Emission Source/Control: 00065 - Control
Control Type: SINGLE CYCLONE

Emission Source/Control: 00066 - Control
Control Type: VENTURI SCRUBBER

Emission Source/Control: 00067 - Control
Control Type: BAFFLE

Emission Source/Control: 00068 - Control
Control Type: HIGH EFFICIENCY PARTICULATE AIR FILTER

Emission Source/Control: 00061 - Process

Item 21.5(From Mod 3):

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: U-00APT

Process: 009

Source Classification Code: 3-01-820-02

Process Description:

Process 009 is the ammonia decomposition system to remove ammonia from five process solution sources including the ion towers, fines tanks, mother liquor solution, mother liquor wash water, and the ammonia scrubber. The total amount of solution processed is 11,360 gallons per day with an average ammonia concentration of 0.054 lb/gallon. The maximum design process rate is 14,400 gallons per day.

The ammonia decomposition system is comprised of two air stripper towers positioned in series, a preconditioner tower, heat exchangers, and a catalytic oxidizer. The

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ammonia containing process waste streams are first directed to a heat exchanger to adjust the temperature of the solution. After the temperature adjustment, the solution is directed to the primary air stripper. Inside the air stripper, the solution is distributed over internal packing material that is designed to create a very large amount of surface area. As the solution travels downwards via gravity over the packing material, air is blown vertically through the packing material via a fan. Due to the significant surface area and air flow, a significant amount of the ammonia that is present in the solution as a dissolved gas is transferred from the solution to the air stream.

The solution that exits the bottom of the primary air stripper is then pumped to the second stage air stripper that operates in the same manner. The resulting collected solution, containing significantly less ammonia, is then directed to the appropriate wastewater treatment.

The ammonia laden air streams from both air strippers are directed to a heat exchanger to increase temperature before being directed to a catalytic oxidizer. The oxidizer uses a combination of heat and catalyst to break the ammonia down to nitrogen and water. The exhaust from the oxidizer is directed to the same heat exchanger (that increases the heat of the inlet stream) prior to being discharged to the atmosphere via an exhaust stack.

The two-stage stripper system is expected to remove 95% of the ammonia from the process solution. The catalytic oxidizer is expected to destroy 98% of the ammonia in the air stream.

Emission Source/Control: CATOX - Control
Control Type: CATALYTIC OXIDATION

Emission Source/Control: 00079 - Process

Emission Source/Control: 00711 - Process

Emission Source/Control: 00870 - Process

Emission Source/Control: 09214 - Process

Emission Source/Control: IONEX - Process

Emission Source/Control: PRECN - Process

Emission Source/Control: STRPA - Process

Emission Source/Control: STRPB - Process

Item 21.6(From Mod 3):

This permit authorizes the following regulated processes for the cited Emission Unit:

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Emission Unit: U-00APT

Process: 01A

Source Classification Code: 3-05-150-02

Process Description:

Process 01A includes the initial processing of ore concentrate. Scheelite or Wolframite is transferred from bulk super sacs and sent to a ball mill. The ore concentrate solution is mixed with sodium hydroxide to leach a sodium tungstate solution which is later purified.

Particulate emissions are generated from the transfer of dry material to the Scheelite ore hoppers. Particulates from these sources are controlled by a baghouse before being vented inside the building.

When ore arrives with particle sizes too large for the ball mill to process, then the dry material is first processed through a newly installed hammermill. The hammermill is vented through a fabric filter baghouse and is exhausted into the general in-plant environment. The hammermill can process up to 7,440 pounds of ore per hour.

Emission Source/Control: 00027 - Control
Control Type: FABRIC FILTER

Emission Source/Control: 422VC - Control
Control Type: VENT CONDENSER

Emission Source/Control: BGHSE - Control
Control Type: FABRIC FILTER

Emission Source/Control: 00211 - Process

Emission Source/Control: 00212 - Process

Emission Source/Control: 00221 - Process

Emission Source/Control: 00222 - Process

Emission Source/Control: 00241 - Process

Emission Source/Control: 00242 - Process

Emission Source/Control: 00413 - Process

Emission Source/Control: 00414 - Process

Emission Source/Control: 00422 - Process

Emission Source/Control: 00442 - Process

Emission Source/Control: HMILL - Process

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Item 21.7(From Mod 3):

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: U-00APT

Process: 01B

Source Classification Code: 3-05-150-02

Process Description:

Process 01B includes the initial processing of scrap tungsten. Scrap tungsten metal is oxidized to sodium tungstate by reacting with sodium sulfate and oxygen. Scrap tungsten and sodium sulfate are loaded into two smelters which are operated at a temperature range of 1,000 degrees Celsius. It is anticipated that it will require approximately four hours to process a smelter batch. The tungsten reacts with the sodium sulfate and oxygen to form sodium tungstate and sulfur dioxide. It is expected that the majority of the sulfur dioxide will be generated during a two hour period of each batch cycle. Upon batch completion, sodium tungstate is discharged into a leach tank where remaining sulfur dioxide is collected by a fume hood. Emission controls for the smelted vent gas (sulfur dioxide) will consist of two scrubbing stages. In the first stage, the hot gas is controlled using a water quench. The controlled gas is scrubbed using a counter current packed bed scrubber and mist eliminator.

Emission Source/Control: 00016 - Control
Control Type: SINGLE CYCLONE

Emission Source/Control: 00019 - Control
Control Type: QUENCH UNIT

Emission Source/Control: 00020 - Control
Control Type: SODIUM-ALKALI SCRUBBING

Emission Source/Control: 00011 - Process

Emission Source/Control: 00012 - Process

Emission Source/Control: 00013 - Process

Emission Source/Control: 00014 - Process

Item 21.8(From Mod 0):

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: U-00APT

Process: 005

Source Classification Code: 3-05-888-01

Process Description:

Process 005 includes tank vents not vented to the scrubber control systems. There are several chemical solution tanks that do not vent through the scrubber

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control systems. These include two NaOCl, NaOH, H₂SO₄, MgSO₄, Na₂S, NH₃Cl and two IT feed tanks. Some of these tanks vent directly to the roof and others vent through filter cartridges to remove particulates before being vented inside the building. Particulates are generated from the addition of dry raw material used to create the desired tank solution. Other particulate emissions are generated from the transfer of dry material to the Blue/Yellow Tungsten screeners. Particulates from these sources are controlled by a baghouse before being vented inside the building.

Emission Source/Control: 08151 - Control
Control Type: FABRIC FILTER

Emission Source/Control: 08152 - Control
Control Type: FABRIC FILTER

Emission Source/Control: 980FC - Control
Control Type: PARTICULATE TRAP

Emission Source/Control: 990FC - Control
Control Type: PARTICULATE TRAP

Emission Source/Control: 00674 - Process

Emission Source/Control: 00675 - Process

Emission Source/Control: 00716 - Process

Emission Source/Control: 00717 - Process

Emission Source/Control: 00781 - Process

Emission Source/Control: 00782 - Process

Emission Source/Control: 00783 - Process

Emission Source/Control: 00911 - Process

Emission Source/Control: 00941 - Process

Emission Source/Control: 00942 - Process

Emission Source/Control: 00951 - Process
Design Capacity: 5,000 gallons

Emission Source/Control: 00953 - Process
Design Capacity: 5,000 gallons

Emission Source/Control: 00980 - Process

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Emission Source/Control: 00990 - Process

Emission Source/Control: 08121 - Process

Emission Source/Control: 08122 - Process

Emission Source/Control: 09141 - Process

Emission Source/Control: 09142 - Process

Item 21.9(From Mod 0):

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: U-00APT

Process: 007

Source Classification Code: 3-05-150-02

Process Description:

Process 007 includes the roasting of filter cake, which is mutually exclusive with the ore roasting. Filter cake from the smelter contains a certain amount of cobalt sulfide which must be roasted to yield cobalt oxide. The cobalt oxide rich filter cake will be fed into the smelter near the end of its smelting cycle to react with excess sulfur in the molten salt. This will change the cobalt oxide back to cobalt sulfide and, thus, begin the cycle over again.

Emission Source/Control: 00062 - Control
Control Type: SINGLE CYCLONE

Emission Source/Control: 00063 - Control
Control Type: FABRIC FILTER

Emission Source/Control: 00064 - Control
Control Type: QUENCH UNIT

Emission Source/Control: 00065 - Control
Control Type: SINGLE CYCLONE

Emission Source/Control: 00066 - Control
Control Type: VENTURI SCRUBBER

Emission Source/Control: 00067 - Control
Control Type: BAFFLE

Emission Source/Control: 00068 - Control
Control Type: HIGH EFFICIENCY PARTICULATE AIR FILTER

Emission Source/Control: 00061 - Process

Item 21.10(From Mod 2):

This permit authorizes the following regulated processes for the cited Emission Unit:

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Emission Unit: U-00APT

Process: 008

Source Classification Code: 3-05-150-02

Process Description:

Process 008 is the ultra-high purity tungsten oxide production. Ammonium tungstate solution undergoes several steps to produce ultra-high purity tungsten oxide. These steps include filtration, crystallization, drying, calcining, dissolution and repeated. Ammonia driven off in the crystallization step is captured for reuse with a new ammonia recovery system. Ammonia driven off in the calcining step is captured for reuse by the existing ammonia recovery system.

Emission Source/Control: ARS02 - Control
Control Type: AMMONIA SCRUBBING

Emission Source/Control: UPCA1 - Process

Emission Source/Control: UPCA2 - Process

Emission Source/Control: UPCR1 - Process

Emission Source/Control: UPCR2 - Process

Emission Source/Control: UPCR3 - Process

Emission Source/Control: UPCR4 - Process

Condition 3-21: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable State Requirement:6 NYCRR 212-2.3 (b)

Item 3-21.1:

The Compliance Demonstration activity will be performed for:

Emission Unit: U-00APT

Regulated Contaminant(s):

CAS No: 007664-41-7 AMMONIA

Item 3-21.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING

Monitoring Description:

PART 212 EVALUATION
FACILITY-WIDE AMMONIA EMISSIONS

(1) The facility-wide maximum potential ammonia emissions used in the Part 212 Evaluation are listed below. These

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are not permit limits:

EP00002 at 3.97 lbs/hr to inlet of ammonia scrubber

EP00011 at 0.00015 lbs/hr outlet of Ammonia Recovery System 1

EP00012 at 0.00015 lbs/hr outlet of Ammonia Recovery System 2

EP00013 at 7.29 lbs/hr outlet of Ammonia Decomposition System Or Catalytic Oxidizer

(2) The ammonia scrubber (EP00002) reduces emissions from storage and process tanks that contain various percentages and amounts of ammonia. A stack test of the inlet to the scrubber was completed on May 3, 2016. The inlet ammonia concentration was measured at 0.567 pounds per hour. Maximum production levels are expected to be 7 times greater. Assuming a linear relationship between production and emission rates, a maximum inlet ammonia rate of 3.97 pounds per hour was calculated. The facility operates the scrubber on a continuous basis and details of the scrubber operation are presented under 6 NYCRR Part 200.7 which requires proper operation and maintenance of control equipment.

(3) Each Ammonia Recovery System (ARS1, EP00011 and ARS2, EP00012) is considered a process source that is used to capture and reuse ammonia from the calciners and crystallizers. A stack test on ARS1, EP00011 was completed on May 4, 2016. The outlet ammonia concentration was measured at 0.00015 pounds per hour. It is assumed ARS2, which is identical to ARS1, has an equivalent emission rate of 0.00015 lbs/hr.

(4) Emission points EP00002, EP00011 and EP00012 are subject to 6NYCRR Part 212-2.3(b) Table 4 which requires a source having an emission rate potential less than 10 lbs/hr to use air dispersion modeling to demonstrate that the maximum offsite air concentration is less than the short-term guideline concentration (SGC) and annual guideline concentration (AGC).

(5) The Ammonia Decomposition System (EP00013) is a process source that strips ammonia from liquid process waste streams before being discharged to the POTW. The amount of ammonia stripped from the wastewater and transferred to an airstream is a maximum daily rate of 583.5 pounds of ammonia over an 8 hour period resulting in an emission rate potential before the pollution control equipment or catalytic oxidizer of 72.9 lbs/hr. At an emission rate potential greater than 10 lbs/hr, in accordance with Table 4 of 6 NYCRR Part 212-2.3(b), a B-rated contaminant requires 90% control resulting in an

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ammonia emission rate of 7.29 lbs/hr. The catalytic oxidizer is proposed to destroy 98% of the ammonia in the air stream resulting in an ammonia emission rate of 1.46 lb/hr.

(6) Using air dispersion modeling in accordance with DAR-1, the cumulative impacts from all 4 ammonia emission sources and using the 90% control for EP00013 results in a maximum off-site 1-hr concentration of 781 ug/m³ compared to the short-term guideline concentration of 2,400 ug/m³. The annual impact was modeled to be 78 ug/m³ compared to the annual guideline concentration of 100 ug/m³.

(7) To demonstrate continued compliance with the ammonia emissions, a performance test of the outlet of the four (4) emission points shall be completed once per permit term. Emission points EP00002, EP00011 and EP00012 were tested in May 2016 which satisfies the testing requirement for the permit term ending on May 18, 2025. Emission point EP00013 must be tested before the current permit term ends on May 18, 2025. A stack test protocol shall be submitted for review at least 9 months prior to the permit expiration date.

(8) An AERSCREEN analysis using the four outlet ammonia concentrations from the performance tests shall be completed to demonstrate compliance with the AGC and SGC.

(9) The stack test report and impact analysis shall be submitted within 60 days of completing the stack test.

(10) At the discretion of the department, additional performance testing and a revised Part 212 evaluation may be required prior to the permit renewal if odors are detected and verified to be coming from the facility and impacting the neighborhood.

Parameter Monitored: AMMONIA

Upper Permit Limit: 100 micrograms per cubic meter

Reference Test Method: DAR-1 AGC and SGC

Monitoring Frequency: ONCE DURING THE TERM OF THE PERMIT

Averaging Method: MAXIMUM - NOT TO EXCEED STATED VALUE -
SEE MONITORING DESCRIPTION

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 3-22: Compliance Demonstration

Effective between the dates of 03/08/2021 and 05/18/2025

Applicable State Requirement: 6 NYCRR 212-2.3 (b)

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Item 3-22.1:

The Compliance Demonstration activity will be performed for:

Emission Unit: U-00APT Emission Point: 00001

Regulated Contaminant(s):
 CAS No: 007783-06-4 HYDROGEN SULFIDE

Item 3-22.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
 Monitoring Description:

DEMONSTRATING CONTINUOUS COMPLIANCE
 HYDROGEN SULFIDE SCRUBBER

(1) Demonstrate compliance with the 6 NYCRR Part 212 requirements for the hydrogen sulfide emissions. This is accomplished by operating and maintaining a flow, differential pressure, oxidation-reduction potential (ORP) and pH measurement device for the hydrogen sulfide wet scrubber system.

(2) Monitor and collect data using a continuous data acquisition system, except for malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments).

(3) The normal operating ranges for the scrubbers are as listed below. These operating ranges are used by the equipment operators to determine if the equipment is functioning properly.

- pH: 11.1-11.3
- ORP: 500-600 mV
- Flow: ~35 GPM (when pumping out to WWTP)
- Flow: ~50-55 GPM all other times
- Differential Pressure Demister: 0.0-0.4 inches of water;
- Differential Pressure Packing: ~2.0-2.5 inches of water

(4) Niagara Refining has equipment alarms to alert the operators when a parameter operating outside its typical range approaches a value indicative of a malfunction. The alarms are used to initiate an investigation of the source and control equipment, and complete any corrective action prior to a potential malfunction. The alarms are activated as noted below:

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pH: 10-12.5; alarm activated if outside range
 ORP: 400-800 mV; alarm activated if outside range
 Flow: alarm activated if less than 25 GPM
 Differential Pressure Demister: alarm activated if greater than 1.0 inches of water;
 Differential Pressure Packing: 1.0-4.0 inches of water; alarm activated if outside range

(5) Keep records of all inspection and monitoring data. Keep records of the occurrence and duration of each malfunction of the air pollution control and monitoring equipment. Keep records of actions taken during periods of a malfunction, including corrective actions to restore the malfunctioning air pollution control, or monitoring equipment to its normal or usual manner of operation. Keep each record for 5 years following the date of each recorded action.

(6) Submit an annual summary report of all malfunction occurrences no later than January 30 each calendar year.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Reporting Requirements: ANNUALLY (CALENDAR)

Reports due 30 days after the reporting period.

The initial report is due 1/30/2022.

Subsequent reports are due every 12 calendar month(s).

Condition 3-23: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable State Requirement:6 NYCRR 212-2.3 (b)

Item 3-23.1:

The Compliance Demonstration activity will be performed for:

Emission Unit: U-00APT Emission Point: 00001

Regulated Contaminant(s):
 CAS No: 007783-06-4 HYDROGEN SULFIDE

Item 3-23.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING

Monitoring Description:

PART 212 EVALUATION
 HYDROGEN SULFIDE SCRUBBER

(1) The hydrogen sulfide scrubber is used in the purification process and is exhausted through EP00001.

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The outlet of the scrubber was stack tested on May 5, 2016 which satisfies the testing requirement for the permit term ending on May 18, 2025. The outlet hydrogen sulfide emission rate was 0.0028 lbs/hr. The inlet was not tested due to safety issues. Based on mass balance calculations, the inlet emission rate is expected to be about 0.25 lbs/hr.

(2) The hydrogen sulfide emissions are subject to 6NYCRR Part 212-2.3(b) Table 4 which requires a source having an emission rate potential less than 1 lb/hr to use air dispersion modeling to demonstrate that the maximum offsite air concentration is less than the short-term guideline concentration (SGC) and annual guideline concentration (AGC). The AERSCREEN results indicate the maximum off-site 1-hr concentration of hydrogen sulfide is 0.387 ug/M3 compared to the short-term guideline concentration of 14 ug/M3. The annual impact was modeled to be 0.039 ug/M3 compared to the annual guideline concentration of 2 ug/M3.

(3) A performance test of the scrubber outlet shall be completed once per permit term. A stack test protocol shall be submitted for review at least 9 months prior to the permit expiration date.

(4) Based on the results of the stack testing, an AERSCREEN analysis shall be completed to evaluate compliance with the AGC and SGC.

(5) The stack test report and impact analysis shall be submitted within 60 days of completing the stack test.

Parameter Monitored: HYDROGEN SULFIDE

Upper Permit Limit: 14 micrograms per cubic meter

Reference Test Method: EPA Method 15 and DAR-1

Monitoring Frequency: ONCE DURING THE TERM OF THE PERMIT

Averaging Method: MAXIMUM - NOT TO EXCEED STATED VALUE -
SEE MONITORING DESCRIPTION

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 3-24: Compliance Demonstration

Effective between the dates of 03/08/2021 and 05/18/2025

Applicable State Requirement: 6 NYCRR Subpart 257-5

Item 3-24.1:

The Compliance Demonstration activity will be performed for:

Emission Unit: U-00APT

Emission Point: 00001

Regulated Contaminant(s):

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CAS No: 007783-06-4 HYDROGEN SULFIDE

Item 3-24.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

6 NYCRR SUBPART 257-5
AMBIENT AIR QUALITY STANDARD FOR HYDROGEN SULFIDE
(H₂S)

(1) Hydrogen sulfide (H₂S) is a colorless gas having a characteristic, disagreeable odor often described as that of rotten eggs. For the purpose of this Subpart the term hydrogen sulfide will include hydrogen sulfide and other sulfides as measured by the acceptable analytical method.

(2) Hydrogen sulfide can cause odors which unreasonably interfere with the comfortable enjoyment of life and property. Although tarnishing of metals and discoloring of paint may occur at higher ambient air concentrations the primary objective of this standard is to prevent disagreeable odors.

(3) In any one-hour period, the average concentration of hydrogen sulfide shall not exceed 0.01 ppm (14 µg/m³), as measured at the property fence line.

(4) If hydrogen sulfide odors are detected near the facility, Niagara Refining shall complete a program of assessment and remediation to correct the potential impacts.

(5) An incident report shall be submitted to the department upon resolution of the incident.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 3-25: Compliance Demonstration

Effective between the dates of 03/08/2021 and 05/18/2025

Applicable State Requirement: 6 NYCRR 212-2.3 (b)

Item 3-25.1:

The Compliance Demonstration activity will be performed for:

Emission Unit: U-00APT

Emission Point: 00010

Permit ID: 9-1452-00327/00001

Facility DEC ID: 9145200327

Regulated Contaminant(s):

CAS No: 007446-09-5 SULFUR DIOXIDE
 CAS No: 001327-53-3 ARSENIC TRIOXIDE

Item 3-25.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

DEMONSTRATING CONTINUOUS COMPLIANCE
 ROASTER SCRUBBER AND SMELTER SCRUBBER
 SULFUR DIOXIDE AND ARSENIC TRIOXIDE EMISSIONS

(1) Demonstrate compliance with the 6 NYCRR Part 212 requirements for the sulfur dioxide and arsenic trioxide emissions. This is accomplished by operating and maintaining a flow, pressure, and pH measurement device for the roaster scrubber and the smelter scrubber.

(2) Monitor and collect data using a continuous data acquisition system, except for malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments).

(3) The normal operating ranges for the scrubbers are as listed below. These operating ranges are used by the equipment operators to determine if the equipment is functioning properly.

SMELTER SCRUBBER OPERATING RANGE

Effluent pH: 6.5-8.5
 Liquid quench flow: 3-4 gpm
 Liquid tower flow 55-56 gpm.
 Tower Pressure Drop: 1 - 2 inches of water

ROASTER SCRUBBER OPERATING RANGE

Effluent pH: 6.5-7.5
 Pressure Drop: -15 to -25 inches of water
 liquid flow rate: 15-16 gpm.

(4) Niagara Refining has equipment alarms to alert the operators when a parameter operating outside its typical range approaches a value indicative of a malfunction. The alarms are used to initiate an investigation of the source and control equipment, and complete any corrective action prior to a potential malfunction. The alarms are activated as noted below:

SMELTER SCRUBBER ALARM

Effluent pH: alarm activated if less than pH 4

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Liquid quench flow: alarm activated if less than 1.5
gpm
Liquid tower flow: alarm activated if less than 40
gpm.
Tower Pressure Drop: alarm activated if greater than 8.5
inches of water

ROASTER SCRUBBER ALARM

Effluent pH: alarm activated if less than pH 5
Pressure Drop: alarm activated if greater than -10 inches
of water

(5) Keep records of all inspection and monitoring data. Keep records of the occurrence and duration of each malfunction of the air pollution control and monitoring equipment. Keep records of actions taken during periods of a malfunction, including corrective actions to restore the malfunctioning air pollution control, or monitoring equipment to its normal or usual manner of operation. Keep each record for 5 years following the date of each recorded action.

(6) Submit an annual summary report of all malfunction occurrences no later than January 30 each calendar year.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Reporting Requirements: ANNUALLY (CALENDAR)

Reports due 30 days after the reporting period.

The initial report is due 1/30/2022.

Subsequent reports are due every 12 calendar month(s).

**Condition 3-26: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025**

Applicable State Requirement:6 NYCRR 212-2.3 (b)

Item 3-26.1:

The Compliance Demonstration activity will be performed for:

Emission Unit: U-00APT Emission Point: 00010

Regulated Contaminant(s):
CAS No: 001327-53-3 ARSENIC TRIOXIDE

Item 3-26.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL
DEVICE PARAMETERS AS SURROGATE

Monitoring Description:

Permit ID: 9-1452-00327/00001

Facility DEC ID: 9145200327

PART 212 EVALUATION
ROASTER SCRUBBER
ARSENIC TRIOXIDE EMISSIONS

(1) The roaster scrubber reduces arsenic trioxide emissions and is exhausted through EP00010. A performance test to determine the control efficiency of the scrubber was completed on December 12 -14, 2017. The inlet arsenic trioxide emission rate measured on the roaster scrubber was 0.003 lbs/hr. The outlet concentration was 8.75E-06 lbs/hr. The resulting calculated destruction efficiency was 99.8%.

(2) The arsenic trioxide emissions are subject to 6NYCRR Part 212-2.3(b) Table 4 which requires a source having an emission rate potential less than 0.1 lb/hr to use air dispersion modeling to demonstrate that the maximum offsite air concentration is less than the short-term guideline concentration (SGC) and annual guideline concentration (AGC). The maximum off-site concentration for arsenic trioxide was calculated to be a one-in-one hundred thousand risk and is considered acceptable according to DAR-1 since the control equipment is considered Best Available Control Technology by having a demonstrated destruction efficiency of greater than 99.5%.

(3) At the discretion of the department, additional testing and a revised Part 212 evaluation and reporting may be required due to potential changes in emission rates or significant process changes.

(4) There are no reporting requirements for this condition unless requested by the DEC.

Parameter Monitored: ARSENIC TRIOXIDE

Lower Permit Limit: 99.5 percent degree of air cleaning
or greater

Reference Test Method: EPA Method 29

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING
DESCRIPTIONAveraging Method: MINIMUM - NOT TO FALL BELOW STATED
VALUE - SEE MONITORING DESCRIPTION

Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 3-27: Compliance Demonstration

Effective between the dates of 03/08/2021 and 05/18/2025

Applicable State Requirement: 6 NYCRR 212-2.3 (b)**Item 3-27.1:**

The Compliance Demonstration activity will be performed for:

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Facility DEC ID: 9145200327

Emission Unit: U-00APT

Emission Point: 00010

Regulated Contaminant(s):

CAS No: 007446-09-5

SULFUR DIOXIDE

Item 3-27.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING

Monitoring Description:

PART 212 EVALUATION
ROASTER SCRUBBER AND SMELTER SCRUBBER
SULFUR DIOXIDE EMISSIONS

(1) There are two (2) scrubbers used to reduce sulfur dioxide emissions from the roaster and the smelter, separately. Both units exhaust through EP00010. A performance test to determine the control efficiency of each scrubber was completed on December 12 -14, 2017 which satisfies the testing requirement for the permit term ending on May 18, 2025.

(2) The sulfur dioxide emissions from the roaster are subject to 6NYCRR Part 212-2.3(a) which requires a source having an emission rate potential less than 1 lb/hr to use air dispersion modeling to demonstrate that the maximum offsite air concentration is less than the respective National Ambient Air Quality Standard. Since the roaster scrubber demonstrated greater than 99% control efficiency, modeling was not required.

(3) The sulfur dioxide emissions from the smelter are subject to 6NYCRR Part 212-2.3(a) which requires a source having an emission rate potential greater than 1 lb/hr to have a 99% control efficiency. The results of the performance test demonstrated a control efficiency of 99%.

(4) A performance test of the roaster and smelter scrubber efficiency shall be completed once per permit term. A stack test protocol shall be submitted for review at least 9 months prior to the permit expiration date.

(5) Based on the results of the stack testing, an AERSCREEN analysis of the combined sulfur dioxide emissions shall be completed to evaluate compliance with the NAAQS.

(6) The stack test report and impact analysis shall be

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submitted within 60 days of completing the stack test.

Parameter Monitored: SULFUR DIOXIDE

Lower Permit Limit: 99 percent degree of air cleaning or greater

Reference Test Method: EPA Method 6 and DAR-1

Monitoring Frequency: ONCE DURING THE TERM OF THE PERMIT

Averaging Method: MINIMUM - NOT TO FALL BELOW STATED VALUE - SEE MONITORING DESCRIPTION

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 3-28: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable State Requirement: 6 NYCRR 212-2.3 (b)

Item 3-28.1:

The Compliance Demonstration activity will be performed for:

Emission Unit: U-00APT Emission Point: 00013

Regulated Contaminant(s):
 CAS No: 007664-41-7 AMMONIA

Item 3-28.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL
 DEVICE PARAMETERS AS SURROGATE

Monitoring Description:

DEMONSTRATING CONTINUOUS COMPLIANCE
 AMMONIA DECOMPOSITION CATALYTIC OXIDIZER

- (1) Demonstrate compliance with the 6 NYCRR Part 212 requirements for the ammonia emissions. This is accomplished by operating and maintaining the air temperature rise across the catalyst bed.
- (2) Monitor and collect data using a continuous data acquisition system, except for malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments).
- (3) The design air temperature rise across the catalyst bed is between 36 and 45 degrees Fahrenheit. This design operating range is used by the equipment operators to determine if the equipment is functioning properly. Niagara Refining has equipment alarms to alert the operators when a parameter operating outside its typical range approaches a value indicative of a malfunction. The

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alarms are used to initiate an investigation of the source and control equipment, and complete any corrective action prior to a potential malfunction.

(4) The design parameters will be verified and adjusted as determined during the required performance test. The design parameters will be used to determine compliance until the operating parameters are verified through performance testing.

(5) Keep records of all inspection and monitoring data. Keep records of the occurrence and duration of each malfunction of the air pollution control and monitoring equipment. Keep records of actions taken during periods of a malfunction, including corrective actions to restore the malfunctioning air pollution control, or monitoring equipment to its normal or usual manner of operation. Keep each record for 5 years following the date of each recorded action.

(6) Submit an annual summary report of all malfunction occurrences no later than January 30 each calendar year.

Parameter Monitored: TEMPERATURE CHANGE

Lower Permit Limit: 36 degrees Fahrenheit

Upper Permit Limit: 45 degrees Fahrenheit

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Averaging Method: RANGE - NOT TO FALL OUTSIDE OF STATED RANGE AT ANY TIME

Reporting Requirements: ANNUALLY (CALENDAR)

Reports due 30 days after the reporting period.

The initial report is due 1/30/2022.

Subsequent reports are due every 12 calendar month(s).

Condition 3-29: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable State Requirement: 6 NYCRR 212-2.3 (b)

Item 3-29.1:

The Compliance Demonstration activity will be performed for:

Emission Unit: U-00APT

Emission Point: 00013

Regulated Contaminant(s):

CAS No: 007664-41-7 AMMONIA

Item 3-29.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL

Permit ID: 9-1452-00327/00001

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DEVICE PARAMETERS AS SURROGATE

Monitoring Description:

DEMONSTRATING CONTINUOUS COMPLIANCE
AMMONIA DECOMPOSITION CATALYTIC OXIDIZER

- (1) Demonstrate compliance with the 6 NYCRR Part 212 requirements for the ammonia emissions. This is accomplished by operating and maintaining the air flow entering the catalyst.
- (2) Monitor and collect data using a continuous data acquisition system, except for malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments).
- (3) The design air flow entering the catalyst is between 3,819 scfm and 4,800 scfm. This design operating range is used by the equipment operators to determine if the equipment is functioning properly. Niagara Refining has equipment alarms to alert the operators when a parameter operating outside its typical range approaches a value indicative of a malfunction. The alarms are used to initiate an investigation of the source and control equipment, and complete any corrective action prior to a potential malfunction.
- (4) The design parameters will be verified and adjusted as determined during the required performance test. The design parameters will be used to determine compliance until the operating parameters are verified through performance testing.
- (5) Keep records of all inspection and monitoring data. Keep records of the occurrence and duration of each malfunction of the air pollution control and monitoring equipment. Keep records of actions taken during periods of a malfunction, including corrective actions to restore the malfunctioning air pollution control, or monitoring equipment to its normal or usual manner of operation. Keep each record for 5 years following the date of each recorded action.
- (6) Submit an annual summary report of all malfunction occurrences no later than January 30 each calendar year.

Parameter Monitored: AIR FLOW

Lower Permit Limit: 3819 cubic feet per minute (standard conditions)

Upper Permit Limit: 4800 cubic feet per minute (standard conditions)

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Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Averaging Method: RANGE - NOT TO FALL OUTSIDE OF STATED RANGE AT ANY TIME

Reporting Requirements: ANNUALLY (CALENDAR)

Reports due 30 days after the reporting period.

The initial report is due 1/30/2022.

Subsequent reports are due every 12 calendar month(s).

Condition 3-30: Compliance Demonstration
Effective between the dates of 03/08/2021 and 05/18/2025

Applicable State Requirement: 6 NYCRR 212-2.3 (b)

Item 3-30.1:

The Compliance Demonstration activity will be performed for:

Emission Unit: U-00APT Emission Point: 00013

Regulated Contaminant(s):
 CAS No: 007664-41-7 AMMONIA

Item 3-30.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING

Monitoring Description:

PART 212 EVALUATION
 AMMONIA DECOMPOSITION CATALYTIC OXIDIZER
 AMMONIA EMISSIONS

(1) A catalytic oxidizer is used to reduce ammonia emissions from the ammonia decomposition system that strips ammonia from process wastewater and transfers the ammonia to an airstream. The ammonia in the airstream is reduced by a minimum of 90% and is vented through EP00013.

(2) The amount of ammonia stripped from the wastewater and transferred to the air is a maximum daily rate of 583.5 pounds of ammonia over an 8 hour period resulting in an emission rate potential before the pollution control equipment or catalytic oxidizer of 72.9 lbs/hr. At an emission rate potential greater than 10 lbs/hr, in accordance with Table 4 of 6 NYCRR Part 212-2.3(b), a B-rated contaminant requires a minimum 90% control. The facility has proposed a 98% control of the ammonia emissions from the ammonia decomposition process. At 90% control, the emission rate is reduced to 7.29 lbs/hr. At 98% control, the emission rate is reduced to 1.46 lbs/hr. Air dispersion modeling was completed using an emission

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rate of 7.29 lbs/hr at 90% control. The cumulative impacts from the four facility-wide ammonia emission sources resulted in a maximum off-site 1-hr concentration of 781 ug/m³ compared to the short-term guideline concentration of 2,400 ug/m³ and an annual impact of 78 ug/m³ compared to the annual guideline concentration of 100 ug/m³. As such, the facility is required to reduce the ammonia emissions from the ammonia decomposition system by a minimum of 90%.

- (3) A performance test to demonstrate compliance with the required 90 percent control efficiency of ammonia emissions across the catalytic oxidizer shall be completed once per permit term.
- (4) The performance test must be conducted at the maximum normal operating process load.
- (5) The design control parameters of the catalyst oxidizer include the air flow entering the catalyst between 3,819 scfm and 4,800 scfm and the temperature rise across the catalyst between 36 and 45 degrees Fahrenheit. The control parameters shall be confirmed as the operating limits during the three-run performance test.
- (6) Collect air flow and temperature rise data every 15 minutes during the entire period of the performance tests.
- (7) Determine the average air flow and air temperature rise for each individual test run in the three-run performance test by computing the average of all the 15-minute readings taken during each test run. The hourly averages shall be used to establish the operating limits.
- (8) The method used to measure ammonia shall be approved by the Department.
- (9) A performance test protocol shall be submitted to the Department for approval at least 9 months prior to the permit expiration date. The Department must be notified 10 days prior to the scheduled test date so a Department representative may be present during the test.
- (10) The results of the performance test shall be submitted to the Department within 60 days following completion of the performance test along with the established operating parameters.
- (11) Subsequent performance test requirements will be at the discretion of the Department based on design,

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operation and maintenance practices used to minimize the impact of excess emissions on ambient air quality, the environment and human health.

Parameter Monitored: AMMONIA

Lower Permit Limit: 90 percent degree of air cleaning or greater

Reference Test Method: CTM-027 or other approved method

Monitoring Frequency: ONCE DURING THE TERM OF THE PERMIT

Averaging Method: MINIMUM - NOT TO FALL BELOW STATED VALUE - SEE MONITORING DESCRIPTION

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

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