Pennsylvania
Department of
Environmental Protection

SOUTHWEST REGIONAL OFFICE – AIR QUALITY PROGRAM **MEMO**

**TO** **63-01001 / PA-63-01001B**

**FROM** **Alexis S. Bruscemi/ASB**
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**THROUGH** **Mark R. Gorog, P.E./MRG**
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**DATE** **May 22, 2026**

**RE** Review of Application for Plan Approval
ETC Northeast Pipeline, LLC – Revolution Cryogenic Plant
Smith Township, Washington County
***AUTH*** *1533394* ***APS*** *1135975* ***PFID*** *805136* **Facility Status:** Synthetic Minor
***AUTH*** *1491252* ***APS*** *1117262* ***PFID*** *805136* **Facility Status:** Major (*Application Replaced*)

## BACKGROUND

ETC Northeast Pipeline, LLC ("ETC") owns and operates the existing Revolution Cryogenic Plant ("Rev Cryo") located at 76 Rover Lane, Bulger, PA 15019 in Smith Township, Washington County (40.4140816, -80.3500418). The facility currently operates under the authority of Natural Minor State-Only Operating Permit SOOP-63-01001 authorized on June 30, 2025. The facility is a natural gas processing plant.

The permittee conducts non-FERC-regulated midstream natural gas gathering and processing business. Activities include constructing and operating non-FERC-regulated, intrastate gathering lines and compression facilities; transporting natural gas from well sites to natural gas processing facilities or interconnections with interstate natural gas transmission pipelines; constructing and operating natural gas processing facilities; transporting natural gas to interconnection points on interstate transmission pipelines; transporting natural gas liquids to interstate liquid pipelines.

On June 25, 2024, the Department received an application for Plan Approval (AUTH 1491252) to construct and operate air contamination sources and air cleaning devices for the Cryo II unit project as a Major Facility. This application was deemed administratively complete on July 8, 2024.

Per letter sent by the Department via email to ETC on January 13, 2025, the Department identified multiple technical deficiencies in the application pursuant to 25 Pa. Code §127.12(a), which specifies in relevant parts, that an application for Plan Approval shall:

(2) Contain information that is requested by the Department and is necessary to perform a thorough evaluation of the air contamination aspects of the source.

(3) Show that the source will be equipped with reasonable and adequate facilities to monitor and record the emissions of air contaminants and operating conditions which may affect the emissions of air contaminants and that the records are being

and will continue to be maintained and that the records will be submitted to the Department at specified intervals or upon request.

(4) Show that the source will comply with applicable requirements of this article and requirements promulgated by the Administrator of the EPA under the Clean Air Act (42 U.S.C.A. § § 7401 – 7706).

(5) Show that the emissions from a new source will be the minimum attainable through the use of the best available technology.

(10) Show that the source and the air cleaning devices are capable of being and will be operated and maintained in accordance with good air pollution control practices.

Response to the technical deficiency notification was received from ETC via email on March 31, 2025. The revised application (AUTH *1533394)* includes a reduced volume of gases sent to the flare on a consistent basis. Rather than flaring or thermal oxidization, ETC has reevaluated and sent all streams to VRU systems where feasible. This application included significant changes which reduced facility-wide potential to emit (PTE) from major source status to synthetic minor status and as such was replaced in the system under the proper application type. Subsequently, the application was determined to be administratively complete on April 25, 2025.

On August 28, 2025, a second technical deficiency notification was sent by the Department via email to ETC, which identified areas in which the application remained technically deficient and identified additional deficiencies pursuant to 25 Pa. Code §127.12(a)(2 and 5). On October 10, 2025, response to the second technical deficiency letter was received from ETC.

On December 2, 2025, a third technical deficiency notification was sent by the Department to ETC, which identified inconsistent language and required clarification throughout the application. On February 3, 2025, response to this email was received from ETC with a revised application dated January 29, 2026. All deficiency letters and responses thereto are available as part of the application record.

The revised application for Plan Approval to construct and operate the following air contamination sources and air cleaning devices for the Cryo II unit project:

- One (1) 300 Gallons per Minute (GPM) amine sweetening unit with a vent controlled by a 6.81 million British thermal units per hour (MMBtu/hr) thermal oxidizer;
- One (1) 1,359 MMBtu/hr emergency flare
- One (1) 9.04 MMBtu/hr inlet gas sieve regen heater
- One (1) 9.04 MMBtu/hr regen heater
- Three (3) Heat Medium Oil (HMO) heaters rated at 40.92 MMBtu/hr;
- Fifteen (15) catalytic heaters rated at 0.06 MMBtu/hr
- Associated piping and components

Natural gas throughput rating of the existing cryogenic process unit is 200 MMSCFD (station design inlet), whereas the new Cryo II unit is designed with a rating of 300 MMSCFD. The existing cryogenic process unit is not impacted by this project and the new Cryogenic unit will not increase NGL production to the existing storage tanks.

The natural gas liquid (NGL) throughput capacity for each Cryo unit (new and existing) will be as follows:

- Cryo I (Existing)
  - 8,420,112 gallons/year Condensate (7 psi RVP)
  - 18,000 Barrels per Day (BPD) C2 [418 million gallons (MMgal)/year]
  - 13,500 BPD C3+ (278 MMgal/year)

- Cryo II (New)

- 27,200 Barrels per Day (BPD) C2 [418 million gallons (MMgal)/year]
- 18,200 BPD C3+ (278 MMgal/year)

Throughout the application review process, the Department and ETC participated in teleconferences on an approximate bi-weekly basis to discuss details of the proposed project from approximately February to April of 2026.

**REGULATORY ANALYSIS**

**Pennsylvania Code**

Per relevant part of 25 Pa. Code §127.11, "…a person may not cause or permit the construction or modification of an air contamination source…or the installation of an air cleaning device on an air contamination source…unless the construction, modification, reactivation or installation has been approved by the Department." Per 25 Pa. Code §121.1, the term *air contamination source* (or *source*) is defined as "[a]ny place, facility or equipment, stationary or mobile, at, from or by reason of which there is emitted into the outdoor atmosphere any air contaminant." An *air cleaning device* is defined as "[a]n article, chemical, machine, equipment or other contrivance, the use of which may eliminate, reduce or control the emission of air contaminants into the atmosphere."

The facility currently operates under the authority of Natural Minor State-Only Operating Permit SOOP-63-01001. The air contamination sources and air cleaning devices (or controls) associated with the existing Cryo I unit include the following in Table I and are categorized by the indicated AIMS source/subfacility IDs (SFIDs) and Source Code Classification (SCC) codes.

Approval for construction and temporary operation of the air contamination sources and air cleaning devices (or controls) associated with the proposed Cryo II unit has been requested via the subject application for Plan Approval PA-63-01001B. The proposed sources and air cleaning devices include the following in Table II and are categorized by the indicated AIMS source/subfacility IDs (SFIDs) and Source Code Classification (SCC) codes:

**Table I:**
Existing Emission Sources and Controls - Cryo 1

| Source ID | Description[6] | | Capacity/Rating | Make & Model | Control I | Control II | SCC |
|---|---|---|---|---|---|---|---|
| 031 | 40.92 MMBtu/hr HMO Heater 1 | | 40.92 MMBtu/hr; 355.3 MMscf/yr | Tulsa Heaters, Inc. (Zeeco Burners) with Vertical Cylindrical GSLF Free-Jet Segmented Ring Burners | --- | --- | 10200602 |
| 032 | 40.92 MMBtu/hr HMO Heater 2 | | 40.92 MMBtu/hr; 355.3 MMscf/yr | Tulsa Heaters, Inc. (Zeeco Burners) with Vertical Cylindrical GSLF Free-Jet Segmented Ring Burners | --- | --- | |
| 033 | 40.92 MMBtu/hr HMO Heater 3 | | 40.92 MMBtu/hr; 355.3 MMscf/yr | Tulsa Heaters, Inc. (Zeeco Burners) with Vertical Cylindrical GSLF Free-Jet Segmented Ring Burners | --- | --- | |
| 201 | 200 GPM Amine Unit 1[5] | | 200 GPM | --- | C201: 1.07 MMBtu/hr Amine Unit Thermal Oxidizer 1 for Still Vent (0.27 MMBtu/hr pilot)[2] | C202-1: 906 MMBtu/hr Rev Cryo 1 Plant Flare w/ 0.34 MMBtu/hr pilot[3] | 31000404 |
| 204 | Electric Compressor Rod Packing | | 1,985,454 scf/yr | --- | C204: 11.3 MMBtu/hr Rod Packing Combustor | --- | 31000299 |
| 301 | Tanks/Vessels | 21,000-gallon Condensate Tanks (Each) TK-811A and TK-811B | 21,000-gallon (each) | --- | --- | --- | 31000214 |
| | | 90,000-gallon 2-lb RVP Condensate Tanks (Each) | 90,000-gallon (each) | --- | C702: Truck Loading Combustor: 1.0 MMBtu/hr (pilot rating), 0.086 MMBtu/hr (flare rating)[1] | --- | |
| | | Miscellaneous Tanks | 500-16,800-gallons each | --- | --- | --- | |
| 401 | Heaters | NGL Dehy Regen Heater (HTR-001) | 6.22 MMBtu/hr; 54 MMscf/yr | --- | --- | --- | 10200602 |
| | | Regenerator Gas Heater (HTR-002) | 8.5 MMBtu/hr; 73.8 MMscf/yr | --- | --- | --- | |
| | | Fifteen (15) Catalytic Heaters | 0.85 MMBtu/hr (Combined); 7.3 MMscf/yr (Combined) | --- | --- | --- | |
| 501 | Pneumatic Devices | | 13,164 scf/yr | --- | --- | --- | 31000299 |
| 601 | Venting/Blowdowns[4] | | - | --- | --- | C202-1: 906 MMBtu/hr Rev Cryo 1 Plant Flare | 31000299 |
| 701 | Fugitives | | - | --- | --- | --- | 31000220 |
| 702 | Truck Loadout | | 1,308,994 bbl/yr truck unloading; 79,748 bbl/yr slop hauling | --- | C702: Truck Loading Combustor: 1.0 MMBtu/hr (flare loading), 0.086 MMBtu/hr (pilot rating)[1] | --- | 31000299 |
| 801 | Pigging Operations | | 1,460,000 scf/yr | --- | --- | C202-1: 906 MMBtu/hr Rev Cryo 1 Plant Flare | 31000299 |
| FLARE-001 | MSS Flare (FLARE-001) | | 906 MMBtu/hr | --- | --- | --- | 30600904 |
| COMB-001 | Combustor for Tank & Loading (COMB-001) | | 1.0 MMBtu/hr | --- | --- | --- | 30600904 |
| THERM-001 | Thermal Oxidizer/Rod Packing Combustor (THERM-001) | | 11.3 MMBtu/hr | --- | --- | --- | 30600904 |

[1] 100% Capture Eff.; 99% DE of VOCs and HAPS (Manuf. Specs).
[2] 100% capture eff. 99% DE of VOCs and HAPs
[3] 98% DE of VOCs and HAPs (Manuf. Specs).
[4] 96% to Flare; 4% as Fugitive.
[5] About 73% of the amine unit total exhaust comprises of the regen vent going to the thermal oxidizer. The remaining 27% is flash gas routed to the MSS flare.
[6] The enclosed 11.3 MMBtu/hr rod packing combustor, the MSS flare, a second amine sweetening unit, and some miscellaneous storage tanks and associated fugitive emission components were authorized under GP5-63-01001A. The second amine sweetening unit and three (3) additional heaters authorized under GP5-63-01001 were never constructed

**Table II:**
Proposed Emission Sources and Controls - Cryo II

| Source ID | Description | | Capacity/Rating | Make & Model | Control I | Control II | Control III | SCC |
|---|---|---|---|---|---|---|---|---|
| 034 | 40.92 MMBtu/hr HMO Heater 4 | HTR-008 | 40.92 MMBtu/hr; 356.38 MMscf/yr | TBD | --- | --- | --- | 10200602 |
| 035 | 40.92 MMBtu/hr HMO Heater 5 | HTR-009 | 40.92 MMBtu/hr; 356.38 MMscf/yr | TBD | --- | --- | --- | |
| 036 | 40.92 MMBtu/hr HMO Heater 6 | HTR-010 | 40.92 MMBtu/hr; 356.38 MMscf/yr | TBD | Low NOx Burners | --- | --- | |
| 205 | 300 GPM Amine Unit 2 | AMINE-002 | 300 GPM | --- | C206: 6.81 MMBtu/hr Amine Unit Thermal Oxidizer 2 for Still Vent (0.27 MMBtu/hr pilot) | C207: VRU for flash gas | C205: 1,359 MMBtu/hr Rev Cryo 2 Plant Flare w/ 0.51 MMBtu/hr pilot for flash gas | 31000404 |
| 206 | VRU Compressors | VRU | - | --- | --- | --- | --- | |
| 402 | Heaters – Inlet Gas Sieve Regen Heater (HTR-001) | HTR-006 | 9.04 MMBtu/hr; 78.7 MMscf/yr | --- | --- | --- | --- | 10200602 |
| | Heaters – Regenerator Gas Heater (HTR-002) | HTR-007 | 9.04 MMBtu/hr; 78.7 MMscf/yr | --- | --- | --- | --- | |
| | Heaters – Fifteen (15) Catalytic Heaters | - | 0.85 MMBtu/hr (Combined); 7.4 MMscf/yr (Combined) | --- | --- | --- | --- | |
| 602 | Venting/Blowdowns | - | - | --- | C207: VRU | C205: 1,359 MMBtu/hr Rev Cryo 2 Plant Flare w/ 0.51 MMBtu/hr pilot | --- | 31000299 |
| 703 | Fugitives | - | - | --- | --- | --- | --- | 31000220 |
| C205 | Cryo II Elevated Flare[1] | FLARE-002 | 1,359 MMBtu/hr | Zeeco | --- | --- | --- | 30600904 |
| C206 | Thermal Oxidizer[2] | THERM-002 | 6.81 MMBtu/hr | Zeeco | --- | --- | --- | 30600904 |
| C207 | Cryo Plant II Venting VRU[3] | VRU | - | --- | --- | --- | --- | --- |

1. 98% control efficiency
2. 99% control efficiency
3. 95% control efficiency

Since the installation of the proposed equipment constitutes the construction of *new sources*, the requirements of 25 Pa. Code §127.1 apply, which specify that "[n]ew sources shall control the emission of air pollutants to the maximum extent, consistent with the best available technology as determined by the Department as of the date of issuance of the Plan Approval for the new source." *Best available technology* (BAT) is defined in 25 Pa. Code §121.1 as "[e]quipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available."

**New Source Performance Standards (NSPS)**

Title 25 Chapter 122 of the Pa. Code adopts the NSPS promulgated by the United States Environmental Protection Agency (EPA) under the Clean Air Act (42 U.S.C.A. §§7401—7642) in 40 CFR Part 60. These standards regulate the construction of new or modification of existing stationary sources and have been adopted by the Department to implement a delegation of Federal authority under section 111(c) of the Clean Air Act (42 U.S.C.A. §7411). The applicability of an NSPS Subpart depends on the type of source and date of construction, reconstruction, or modification as these terms are defined in the General Provisions of the NSPS in 40 CFR Part 60 Subpart A or as specifically defined in the associated subpart. With respect to the proposed sources at Rev Cryo, the following potentially applicable NSPS are evaluated in the Federal Requirements—*New Source Performance Standards* section of this document:

- 40 CFR Part 60 Subpart Db—*Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units*
- 40 CFR Part 60 Subpart Dc—*Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*
- 40 CFR Part 60 Subpart Kb—*Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, and On or Before October 4, 2023*
- 40 CFR Part 60 Subpart KKK—*Equipment Leaks of VOC From Onshore Natural Gas Processing Plants, and on or Before August 23, 2011*
- 40 CFR Part 60 Subpart LLL—*Standards of Performance for SO2 Emissions From Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011*
- 40 CFR Part 60 Subpart OOOO—*Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification, or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015*
- 40 CFR Part 60 Subpart OOOOa—*Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced After September 18, 2015 and On or Before December 6, 2022*
- 40 CFR Part 60 Subpart OOOOb—*Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After December 6, 2022*
- 40 CFR Part 60 Subpart OOOOc—*Emissions Guidelines for Greenhouse Gas Emissions from Existing Crude Oil and Natural Gas Facilities*

**National Emissions Standards for Hazardous Air Pollutants (NESHAPs)**

Title 25 Chapter 124 of the Pa. Code adopts the National Emission Standards for Hazardous Air Pollutants (NESHAPs) of 40 CFR Part 61. NESHAPs are found in both 40 CFR Part 61 and 40 CFR Part 63 and are

stationary source standards established by EPA for hazardous air pollutants (HAPs) which are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. The Part 61 NESHAPs regulate only seven (7) hazardous air pollutants, including asbestos, beryllium, mercury, vinyl chloride, benzene, arsenic, and radon/radionuclides. None of the Part 61 standards apply to the proposed sources at ETC.

The 1990 Clean Air Act Amendments significantly expanded EPA's authority to regulate hazardous air pollutants. Section 112 of the Clean Air Act lists 187 hazardous air pollutants to be regulated by source category. The NESHAPs promulgated after the 1990 Clean Air Act Amendments are found in 40 CFR Part 63. These standards require application of technology-based emissions standards, referred to as Maximum Achievable Control Technology (MACT), or MACT standards. Most NESHAPs are delegated to the states but both EPA and the states implement and enforce these standards. With respect to the proposed sources at ETC, each of the following potentially applicable NESHAPs is evaluated in the Federal Requirements—*National Emission Standards for Hazardous Air Pollutants* section of this document:

- 40 CFR Part 63 Subpart HH— *National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities*
- 40 CFR Part 63 Subpart HHH—*National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities*
- 40 CFR Part 63 Subpart JJJJJJ—*National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*

**Standards for Contaminants**

Per **25 Pa. Code §123.1—*Prohibition of Certain Fugitive Emissions***, no person may permit the emission into the outdoor atmosphere of a fugitive air contaminant from a source other than those identified in §123.1(1-7, and 9). Further, in accordance with **§123.2—*Fugitive Particulate Matter***, a person may not at any time permit fugitive particulate matter to be emitted into the outdoor atmosphere from a source specified in §123.1(a)(1-9) if the emissions are visible at the point the emissions pass outside the property on which the source is located. Although the proposed equipment should not be potential sources of fugitive particulate matter, the limitations of §§123.1 and 123.2 using the same language specified for facility-wide inspections in OP-63-01001, as appropriate, have been incorporated into PA-63-01001B.

Per 25 Pa. Code §121.1, a *process* is defined in relevant part as "[a] method, reaction or operation in which materials are handled or whereby materials undergo…chemical change"—that is, a substance with different chemical composition or properties is formed or created. The term includes all of the equipment, operations and facilities necessary for the completion of the transformation of the materials to produce a physical or chemical change. The elevated plant flare (to which emissions will be directed during VRU outages) at Cryo II plant is a process and is subject to §123.13. Emissions limitations applicable to processes are found in **25 Pa. Code §123.13—*Processes***, where with respect to that specified for processes not listed in §123.13(b)(1) since Rev Cryo will not include any of the listed processes, no person may permit the emission of particulate matter from a process in a manner that the concentration of particulate matter in the effluent gas exceeds 0.04 grain per dry standard cubic foot when the effluent gas volume is less than 150,000 dry standard cubic feet per minute per §123.13(c)(1)(i).

Per 25 Pa. Code §121.1, a *combustion unit* is defined as a "stationary equipment used to burn fuel primarily for the purpose of producing power or heat by indirect heat transfer". The proposed Cryo Plant II 9.04 MMBtu/hr NGL dehydration regenerative heater (HTR-007), 9.04 MMBtu/hr regenerative gas heater (HTR-006), and three

(3) 40.92 MMBtu/hr hot medium oil (HMO) heaters (HTR-008 to 010) at Rev Cryo meet the definition of *combustion unit* since each produces heat by means of indirect heat transfer. Emissions limitations subject to combustion units are found in **25 Pa. Code §123.11**—***Combustion Units***, which specifies that a person may not permit the emission of particulate matter from a combustion unit in excess of the 0.4 lb/MMBtu for units with heat input greater than 2.5 MMBtu/hr and less than 50 MMBtu/hr as in specified in §123.11(a)(1).

*Table III* identifies the applicable particulate matter standard for each affected combustion unit at Rev Cryo.

***Table III: Particulate Matter Emissions Standards Summary (§123.11).***

| Source ID | Source Description | Citation | Heat Input (MMBtu/hr), each | Applicable PM Emission Rate Limit (lb/MMBtu) |
|---|---|---|---|---|
| **402** | **NGL dehydration regenerative heater** | §123.11(a)(1)[a] | 9.04 | 0.04 |
| **402** | **regenerative gas heater** | §123.11(a)(1)[a] | 9.04 | 0.04 |
| **034 - 036** | **HMO heaters** | §123.11(a)(1)[a] | 40.92 | 0.04 |

[a] Combustion unit rated at greater than 2.5 MMBtu/hr but less than 50 MMBtu/hr.

Sulfur compound emissions standards are established in **§123.21—*General***. The sulfur compound emissions standard applicable to all proposed sources is found in §123.21(b) which establishes that no person may permit the emission into the outdoor atmosphere of sulfur oxides from a source in a manner that the concentration of the sulfur oxides, expressed as $SO_2$, in the effluent gas exceeds 500 parts per million, by volume, dry basis.

Particulate emissions limitations applicable to the proposed equipment are found in **25 Pa. Code §123.11—*Combustion Units***. The limitations of these sections and the same language specified for facility-wide inspections in OP-63-01001, as appropriate, have been incorporated into PA-63-01001B.

Odor emissions are regulated under **25 Pa. Code §123.31—*Limitations*** where §123.31(b) specifies that "[a] person may not permit the emission into the outdoor atmosphere of any malodorous air contaminants from any source, in such a manner that the malodors are detectable outside the property of the person on whose land the source is being operated" where a *malodor* is defined in §121.1 as "[a]n odor which causes annoyance or discomfort to the public and which the Department determines to be objectionable to the public." The limitations of §123.31 and the requirement to conduct odor surveys as part of facility-wide inspections at least once per operating day.

Visible emissions from sources are regulated under **25 Pa. Code §123.41—*Limitations*** which prohibits the emission of visible air contaminants into the outdoor atmosphere in such a manner that the opacity of the emission is either equal to or greater than 20% for a period or periods aggregating more than 3 minutes in any 1 hour, or equal to or greater than 60% at any time. Since the potential for stack opacity from near-pipeline quality gas natural gas-fired combustion unit stacks and flare stacks is minimal (if operated properly) and the regulatory standards of §123.41 would be unreasonably excessive, stack opacity from all proposed sources will be limited by condition to not equal or exceed 10% at all times. Pursuant to 25 Pa. Code §127.12b(a), to ensure compliance with the specified case-by-case BAT visible emission limitation(s), the requirement to conduct visible emission surveys as part of facility-wide inspections at least once per operating day have been incorporated into the Plan Approval for Rev Cryo using the language specified for facility-wide inspections in OP-63-01001. If any visible emissions are apparent, the owner or operator will be required to take immediate corrective action. The owner or operator shall maintain records of all such inspections and any corrective action.

**State Monitoring and Reporting Requirements**

**25 Pa. Code Chapter 135** establishes a means of obtaining data required to evaluate the effectiveness of regulations, identify available or potential emission offsets, and maintain an accurate inventory of air contaminant emissions for air quality assessment and planning activities. In its current authorizations for Rev Cryo (OP-63-01001), ETC is currently required to maintain records necessary for the identification and quantification of potential and actual air contaminant emissions, including but not limited to hours of operation, fuel usage, maintenance of process or pollution control equipment; and to submit a source emissions report by March 1 of each year for the preceding calendar year.

Facility blowdowns, or controlled releases of pressurized gas, are necessary at natural gas processing plants to facilitate equipment repairs or to place a piece of equipment into service following a repair or shutdown. ETC has proposed to capture emissions from residue gas compressor blowdowns, closed drain vapors, residue compressor rod packing, and centrifugal dry compressor seal. Certain equipment malfunctions or shutdowns will trigger an emergency shutdown (ESD) of the entire facility where most of the pressurized gas contained within the equipment and piping must be released. Given the potential volume of gas associated with a facility-wide ESD, all gas from such events will be directed to the facility emergency flare. In its application and subsequent revisions, ETC provided estimates of blowdown emissions at Rev Cryo. The Plan Approval will require ETC to measure, maintain records of, and report emissions associated with all blowdowns and ESDs at ETC. Appropriate reporting and record keeping requirements have been included in Plan Approval PA-63-01001B.

**State Source Testing Requirements**

**25 Pa. Code Chapter 139** establishes requirements for sampling and testing and will be applicable to the proposed sources at this facility. The Plan Approval will require that all source testing be conducted in accordance with the most recent version of the Department's *Source Testing Manual* pursuant to §139.3 as well as any additional requirements specified in applicable Federal Regulations. Pursuant to Code §139.5(f), a person proposing test methods, procedures and guidance for the reporting of emissions different from those contained in the *Source Testing Manual* shall have the burden of proof to demonstrate that test methods, procedures and guidance accurately characterize the emissions from the source. If the Department has cause to believe that air contaminant emissions from the sources listed in Plan Approval PA-63-01001B may exceed the limitations specified in, or established pursuant to this plan approval, the Department may require that testing is conducted to determine the actual emissions rate(s).

**Additional Regulatory and Policy Considerations**

In addition to regulations promulgated under the Air Pollution Control Act and Clean Air Act, the Department utilizes policies and procedures established in technical guidance documents to supplement existing regulatory and statutory requirements. These guidance documents establish a framework within which DEP can exercise its administrative discretion in a variety of areas. Since these policies and procedures are not regulation, DEP reserves its discretion to deviate from the policy statements when circumstances warrant.

*Land Use Policy*

Under Act 247, as amended by Acts 67, 68, and 127 of the Municipalities Planning Code, the Department and other state agencies "shall consider and may rely upon comprehensive plans and zoning ordinances when reviewing applications" for the permitting of facilities. The Department's *Final Revision of Policy for*

*Consideration of Local Comprehensive Plans and Zoning Ordinances in DEP Review of Permits for Facilities and Infrastructure* (012-0200-001; March 6, 2004) established procedures for how the Department considers, and under certain conditions relies upon, comprehensive planning and zoning ordinances in its permit decision making process related to facilities to avoid or minimize conflict with local land use decisions.

Rev Cryo is an existing facility located on property of which the land use will not change due to the proposed project. As such, the Department's Land Use Policy is not applicable and no further action is required.

*Environmental Justice*

The Department's *Environmental Justice Policy* (015-0501-002; September 16, 2023) ("EJP") was established to facilitate environmental justice in communities across the Commonwealth of Pennsylvania and to ensure equity and environmental justice in the administration of the Department's constitutional, statutory, and regulatory duties. The EJP applies to the review of applications administered by DEP for environmental authorizations, as well as to the review of DEP permits as described in this policy and to DEP program areas and initiatives specifically named and included within this policy. The EJP does not supersede the Permit Decision Guarantee or other policies, or any applicable executive orders, regulations, or statutes.

With respect to permitting of air pollution sources under 25 Pa. Code Chapter 127, the EJP only applies to the air quality *Trigger Projects* as this term is defined in the EJP, which includes approvals of *new major sources of hazardous air pollutants or criteria pollutants* and/or *major modifications of major sources (subject to Prevention of Significant Deterioration or Nonattainment New Source Review)* when such sources are located in Environmental Justice Areas. For the purposes of the EJP, an area is designated an "Environmental Justice Area" if the Department's *Pennsylvania Environmental Justice Mapping and Screening Tool* (*PennEnviroScreen*[1]) score is greater than 80.

Although the project was initially subject to the EJP, since the revised application no longer proposes either of the air quality *Trigger Projects* listed above, it is <u>not</u> subject to the Enhanced Public Participation Process established by the EJP. It should be noted that the Rev Cryo is located in an area with a *PennEnviroScreen* score of 94, which is therefore an Environmental Justice Area. Although the subject application no longer a *Trigger Permit, g*iven the general public interest in the facility, the Department has elected to hold both a public meeting and a public hearing on June 25, 2026, from 6:00 PM to 8:00 PM at Burgettstown Area Middle/High School's LGI Room, 100 Bavington Road, Burgettstown, PA 15021. Notice of the hearing appeared in the *Pa. Bulletin* on May 23, 2026.

*Permit Review Policy/Decision Guarantee*

Under Executive Order 2012-11, the *Policy for Implementing the Department of Environmental Protection (Department) Permit Review Process and Permit Decision Guarantee* (021-2100-001) was made effective on November 2, 2012. This policy established a standardized review process and processing times for all Department permit applications. For permits contained in the Permit Decision Guarantee ("PDG"), the Department guarantees to provide permit decisions within the published timeframes, provided that applicants submit complete, technically adequate applications that address all applicable regulatory and statutory requirements in the first submission. This policy established a Department-wide standard process for receiving, prioritizing, accepting, reviewing, denying, and approving applications for permits or other authorizations. This policy covers Major Facility Plan Approvals (State Regulation) and provides a permit decision guarantee of 150 business days after

[1] https://gis.dep.pa.gov/PennEnviroScreen/.

the application is determined to be administratively complete, provided that the application is not technically deficient.

The Plan Approval application (PA-63-01001A) for the proposed project at Rev Cryo was received on June 25, 2024, and was determined to be administratively complete via email on July 8, 2024. Via technical deficiency letter dated January 13, 2025, additional technical information was requested from the applicant. Since the requested information was scientific, engineering, and project design related information necessary to address specific regulatory requirements, these deficiencies voided the permit decision guarantee for the application. The deficiencies have also stopped the PAyBack program review clock established under Executive Order 2023-07, which provides a review timeframe for this application type of 160 business days. Responses to the deficiency items were received via emailed letter and attachments from ETC on via email on March 31, 2025. Since significant application revisions were made since the application was received (the proposed project will no longer result in the facility becoming major for VOCs per written commitment from ETC received on January 17, 2025), the initial *major facility Plan Approval application* has been replaced in eFACTS with a *minor facility Plan Approval application* which will establish a new 140-day PAyBack clock with start date of May 24, 2025. Additional technical information was requested via technical deficiency letter from the Department dated August 28, 2025, to which responses were received from ETC on October 10, 2025.

## Analysis of Federal Requirements

### New Source Performance Standards

Per §60.1(a) of **40 CFR Part 60 Subpart A—*General Provisions***, the provisions of 40 CFR Part 60 apply to the owner or operator of any stationary source which contains an affected facility of which the construction or modification commenced after the date of publication in this part of any standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility. For the purposes of Part 60, an *affected facility* means "with reference to a stationary source, any apparatus to which a standard is applicable." The affected facility to which a standard (or Subpart) applies is specifically defined within each subpart. Part 60 Subpart A specifies general regulatory provisions—including but not limited to definitions, notification and recordkeeping requirements, and performance testing requirements—which apply in each of the subsequent Part 60 subparts.

The requirements of **40 CFR Part 60 Subpart Db—*Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units*** do not apply to the proposed heaters at Rev Cryo. Although the proposed heaters are each considered "a device that combusts any fuel or byproduct/waste and produces steam or heats water or heats any heat transfer medium…" and a *steam generating unit* by definition in 40 CFR §60.41b, since each does not have a rated heat input capacity of greater than 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)) per §60.40b, each heater is not an affected facility under Subpart Db.

The requirements of **40 CFR Part 60 Subpart Dc—*Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*** applies to the proposed Cryo Plant II 40.92 MMBtu/hr hot medium oil (HMO) heaters at Rev Cryo. Each heater is considered "a device that combusts any fuel or byproduct/waste and produces steam or heats water or heats any heat transfer medium…" and therefore a *steam generating unit* by definition in 40 CFR §60.41c. Since on each has have a rated heat input capacity of a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h) per §60.40c, each is an affected facility under Subpart Dc. The proposed heaters are subject to limited reporting and record keeping requirements pursuant to §60.48c, which have been incorporated as plan approval conditions.

Per §60.48c(a), the owner or operator of each affected facility shall submit notification of the date of construction or reconstruction and actual startup, as provided by §60.7 of this part. This notification shall include the design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility. The owner or operator shall maintain daily fuel consumption records in accordance with 40 CFR §60.48c(g).

The requirements of **40 CFR Part 60 Subpart Kb—*Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984*** apply to "…each storage vessel with a capacity greater than or equal to 75 cubic meters ($m^3$) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984." Additionally, per §60.110b(d), "This subpart does not apply to "…[v]essels with a design capacity less than or equal to 1,589.874 $m^3$ used for petroleum or condensate stored, processed, or treated prior to custody transfer…".

The proposed project at Rev Cryo does not include any new storage tanks with a capacity greater than or equal to 75 $m^3$ and the previously installed storage tanks at Rev Cryo will not be modified as part of this project. Therefore, the requirements of 40 CFR Part 60 Subpart Kb do not apply.

The requirements of **40 CFR Part 60 Subpart KKK—*Equipment Leaks of VOC From Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011,*** do not apply to Rev Cryo. Per 40 CFR §60.630(a)(1), Subpart KKK applies to affected facilities in onshore natural gas processing plants that commenced construction, reconstruction, or modification after January 20, 1984, and on or before August 23, 2011. Rev Cryo does not and will not incorporate any Subpart KKK-affected facilities for which construction, reconstruction, or modification commenced after January 20, 1984, and on or before August 23, 2011.

The requirements of **40 CFR Part 60 Subpart LLL—*Standards of Performance for $SO_2$ Emissions From Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011,*** do not apply to Rev Cryo. Per 40 CFR §60.640(a), Subpart LLL applies to the following affected facilities that process natural gas: each sweetening unit, and each sweetening unit followed by a sulfur recovery unit. Per §60.641, a *sweetening unit* is a process device that separates the $H_2S$ (hydrogen sulfide) and $CO_2$ (carbon dioxide) contents from the sour natural gas stream, and a *sulfur recovery unit* is a process device that recovers elemental sulfur from acid gas. Although Rev Cryo incorporates an amine unit which removes $CO_2$ from process gas, it is not a Subpart LLL-affected facility since it was not constructed after January 20, 1984, and on or before August 23, 2011.

The requirements of **40 CFR Part 60 Subpart NNNa—S*tandards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations for Which Construction, Reconstruction, or Modification Commenced After April 25, 2023,*** do not apply to Rev Cryo. Per 40 CFR §60.660a(a), Subpart NNNa applies to affected facilities that produce any of the chemicals listed in §60.667a as a product, co-product, by-product, or intermediate. The proposed project does not include distillation operations that produce a listed chemical in §60.667a; therefore, the requirements of 40 CFR Part 60 Subpart NNNa do not apply.

The requirements of **40 CFR Part 60 Subpart OOOO—*Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015*** do not apply at Rev Cryo since it does not incorporate any onshore affected facilities that commenced construction, modification, or reconstruction after August 23, 2011, and on or before September 18, 2015.

The requirements of **40 CFR Part 60 Subpart OOOOa—*Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015, and on or before December 6, 2022,*** apply at Rev Cryo since it incorporates onshore affected facilities that commenced construction, modification or reconstruction after September 18, 2015, and on or before December 6, 2022. The requirement of Subpart OOOOa are included in operating permit OP-63-01001. Any affected facilities constructed or modified as part of the Rev Cryo II project are potentially affected under **40 CFR Part 60 Subpart OOOOb—*Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After December 6, 2022.***

The requirements of **40 CFR Part 60 Subpart OOOOb—*Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After December 6, 2022*** (final rule published in the *Federal Register* on March 8, 2024) applies at Rev Cryo since one or more Subpart OOOOb potentially affected facilities is proposed to be constructed or modified at Rev Cryo after December 6, 2022. Subpart OOOOb applies to affected facilities[2] in the *crude oil and natural gas source category*, which as defined in 40 CFR §60.5430b, includes "[n]atural…processing…" and establishes emission standards and compliance schedules from for the control of greenhouse gases (GHG) (through standards in the form of limitations on methane emissions), volatile organic compounds (VOC), and sulfur dioxide ($SO_2$) emissions. Per §60.5370b(a), ETC must be in compliance with the standards of Subpart OOOOb upon initial startup except as specified in §60.5370b for each potentially affected facility type. The applicable requirements of Subpart OOOOb have been included as conditions in the Plan Approval.

*Reciprocating Compressors*

Subpart OOOOb applies to each *reciprocating compressor affected facility* constructed or modified after December 6, 2022, which, per 40 CFR §60.5365b(c), is a single reciprocating compressor. The project will include three (3) reciprocating compressor and (2) VRU compressors which must meet, per the specified schedules, either the standard or alternate requirements of §60.5385b, as selected by ETC and as specified in §60.5410b(e).

*Process Controllers*

Subpart OOOOb applies to each *process controller affected facility* constructed or modified after December 6, 2022, which, per 40 CFR §60.5365b(d), is the "collection of natural gas-driven process controllers at…an onshore natural gas processing plant…", wherein, per §60.5430b, a *process controller* is defined as "…an automated instrument used for maintaining a process condition such as liquid level, pressure, delta-pressure and temperature. No natural gas-driven *process controller affected facilities* are proposed with the Cryo II project.

*Storage Vessels/Tank Batteries*

Per §60.5365b, Subpart OOOOb applies to each *storage vessel affected facility* constructed or modified at after December 6, 2022, which, per 40 CFR §60.5365b(e), is a *tank battery*[3] that has the potential for emissions as

[2] In general, per 40 CFR §60.5365b(a-h), potentially affected facilities under Subpart OOOOb include each well, centrifugal compressor, reciprocating compressor, natural gas-driven process controller, storage vessel, process unit, sweetening unit, natural gas-driven pump, and collection of fugitive emissions components.

[3] Per 40 CFR §60.5430b, a *tank battery* means a group of all storage vessels that are manifolded together for liquid transfer. A tank battery may consist of a single storage vessel if only one storage vessel is present.

specified in §60.5365b(e)(1)(i)[4] or (ii)[5] as determined per §60.5365b(e)(2). Per §60.5365(e)(3)(ii)(D), a *modification* of a tank battery at an onshore natural gas processing plant occurs when an existing tank battery receives additional fluids which cumulatively exceed the throughput used in the most recent determination of the potential for VOC or methane emissions. The proposed Cryo II plant does not include construction of new storage vessels and will not result in an increase in condensate throughput through the existing condensate storage vessels; therefore, the storage tanks are not affected facilities under this Subpart.

*Process Unit Equipment*

Per §60.5365(f), each *process unit equipment affected facility*, which is the group of all equipment within a process unit at an onshore natural gas processing plant is an affected facility. Per §60.5430b, a *process unit* is the "…components assembled for the extraction of natural gas liquids from field gas, the fractionation of the liquids into natural gas products, or other operations associated with the processing of natural gas products…." Since the *process unit* at Rev Cryo includes all previously installed and proposed natural gas processing equipment (Cryo I plant) operates independently from the Cryo II project if supplied with sufficient feed or raw materials and sufficient storage facilities for the products, the entire Rev Cryo plant is not a process *unit equipment affected facility* under Subpart OOOOb. Therefore, ETC must comply with the requirements of §60.5400b or §60.5401b to reduce methane and VOC emissions from equipment leaks for all process unit equipment affected facilities at the Cryo II plant as soon as practicable, but no later than 180 days after the initial startup of the Cryo II project.

*Sweetening Units*

Per §60.5365b(g)(1 and 2), each *sweetening unit affected facility* that processes natural gas produced from either onshore or offshore wells AND that processes natural gas followed by a sulfur recovery unit is an affected facility under Subpart OOOOb. Per §60.5430b, a *sweetening unit* is "…a process device that removes hydrogen sulfide and/or carbon dioxide from the sour natural gas stream" and *acid gas* is "…a gas stream of hydrogen sulfide ($H_2S$) and carbon dioxide ($CO_2$) that has been separated from sour natural gas by a sweetening unit." Although Rev Cryo for the proposed Cryo II project incorporates an amine gas treating unit to remove $CO_2$ from its final products, since Rev Cryo does <u>not</u> process sour gas, the amine unit is <u>not</u> a *sweetening unit* as defined in §60.5430b and therefore <u>not</u> a *sweetening unit affected facility* under Subpart OOOOb.

*Pumps*

Subpart OOOOb applies to each *pump affected facility* which is, in relevant part, the collection of natural gas-driven pumps at an onshore natural gas processing plant. Although pumps will be constructed as part of the Cryo II project, the pumps will be electric or instrument air-driven and are therefore not *pump affected facilities*.

*Fugitive Emissions Components*

Subpart OOOOb applies to each *fugitive emissions components* affected facility constructed or modified at a well site, centralized production facility, or a compressor station after December 6, 2022. Since Rev Cryo is an onshore natural gas processing plant, it is a *process unit* by definition in §60.5430b. Each *process unit affected facility* is subject to the fugitive GHG and VOC standards applicable to *process unit equipment affected facilities* as specified in §60.5400b which are subject to the requirements for each *fugitive emissions components* affected facility.

[4] VOC emissions equal to or greater than 6 tons per year.
[5] Methane emissions equal to or greater than 20 tons per year.

The requirements of **40 CFR Part 60 Subpart OOOOc—*Emissions Guidelines for Greenhouse Gas Emissions from Existing Crude Oil and Natural Gas Facilities*** (whether the "model rule" portion of Subpart OOOOc in §§60.5385c—60.5430c OR state standards established pursuant to §§60.5360c—60.5481c of Subpart OOOOc) will apply to designated facilities of which construction, modification, or reconstruction commenced on or before December 6, 2022, at Rev Cryo, no later than March 8, 2027. Per §60.5386c, Subpart OOOOc-designated facilities include each *well*, *centrifugal compressor*, *reciprocating compressor*, *process controller*, *pump*, and *storage vessel, process unit, and fugitive emission component* as these terms are defined in 40 CFR §60.5430c. The specific applicable requirements will be determined after the Department's submittal of its plan to implement the emission guidelines of Subpart OOOOc to the United States Environmental Protection Agency (USEPA).

**National Emissions Standards for Hazardous Air Pollutants**

The requirements of **40 CFR Part 63 Subpart HH—*National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities*** do not apply at ETC Rev Cryo. Per 40 CFR Part §63.760(a), Subpart HH applies to certain affected sources at *oil and natural gas production facilities* that process, upgrade, or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category and are major or area sources of HAPs. Rev Cryo is classified as an *area source*, and per §63.760(b)(2), the affected facility at an area source is each triethylene glycol (TEG) dehydration unit. Since Rev Cryo does not or will not include a TEG dehydration unit, Subpart HH does not apply.

The requirements of **40 CFR Part 63 Subpart HHH—*National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities*** do not apply to ETC at Rev Cryo since the facility is not a natural gas transmission and storage facility and not a major source of hazardous air pollutants (HAP) emissions as defined in §63.1271.

The requirements of **40 CFR Part 63 Subpart JJJJJJ—*National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*** do not apply to ETC at Rev Cryo. The term *boiler* is defined in §63.11237 in relevant part as "an enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam and/or hot water" and also specifies in relevant part that "…process heaters…are excluded from the definition of [*b*]*oiler*." The term *process heater* is defined in relevant part in §63.11237 as any "…an enclosed device using controlled flame [combustion], and the unit's primary purpose is to transfer heat indirectly to a process material (liquid, gas, or solid) or to a heat transfer material (e.g., glycol or a mixture of glycol and water) for use in a process unit, instead of generating steam." The proposed heaters at Rev Cryo meet the definition of *process heater* in 40 CFR §63.11237. Therefore, the requirements of Subpart JJJJJJ do not apply to ETC for these heaters.

The requirements of **40 CFR Part 68 *Chemical Accident Prevention Provisions* (**as required and applicable in Section B of all plan approvals) applies to ETC at Rev Cryo. The condition states: "If required by Section 112(r) of the Clean Air Act, the permittee shall develop and implement an accidental release program consistent with requirements of the Clean Air Act, 40 CFR Part 68 (relating to chemical accident prevention provisions) and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act (P.L. 106-40)." The condition also states: The permittee shall prepare and implement a Risk Management Plan (RMP) which meets the requirements of Section 112(r) of the Clean Air Act, 40 CFR Part 68 and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act when a regulated substance listed in 40 CFR § 68.130 is present in a process in more than the listed threshold quantity at the facility." The applicable substances are and will continue (after construction of Cryo II) to be stored at quantities more than the listed threshold quantity

of a facility. ETC is required to prepare/update and implement the RMP at Rev Cryo and provide submittals to EPA as required in 40 CFR Part 68 and Section B of the plan approval.

## EMISSIONS AND CONTROLS and BEST AVAILABLE TECHNOLOGY (BAT) ANALYSIS

The proposed new sources at Rev Cryo meet the 25 Pa. Code §121.1 definition of *new source*. Per 25 Pa. Code §127.12(a)(5):

> "New sources shall control the emission of air pollutants to the maximum extent, consistent with the best available technology as determined by the Department as of the date of issuance of the Plan Approval for the new source."

*Best available technology* (BAT) is defined in 25 Pa. Code §121.1 as the:

> "Equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available."

The Department's *Best Available Technology and Other Permitting Criteria* (275-2101-007; February 23, 1996) ("BAT-TGD") a collection of policies and procedures intended to supplement existing requirements and establishes the framework for DEP's administrative discretion. Although the recommendations in the BAT-TGD should be adhered to for all sources that fall into a specified source category, DEP retains the ability to deviate from these policy statements if circumstances warrant. These documents and other reference materials, including the manufacturer's specifications, prior Plan Approvals issued for the construction of similar sources, and other technical resources as identified throughout this memo, were evaluated to determine if the proposed sources meet the applicable BAT recommendations and requirements. Although the proposed equipment is not specifically discussed in the in the BAT-TGD, applicable BAT requirements for the proposed sources are found in the Department's *General Plan Approval and/or General Operating Permit for Gas and No. 2 Oil Fired Small Combustion Units* (GP-1) and *General Plan Approval and/or General Operating Permit for Natural Gas Compression Stations, Processing Plants, and Transmission Stations* (GP-5).

In summary, the construction of new sources must be approved by the Department, and, at the time of approval, emissions from the new sources must be controlled to the maximum extent by the application of available equipment, devices, methods, or techniques which have been determined by the Department to meet these criteria. Establishing BAT for a given source or class of sources requires evaluating the technical feasibility and the ability to reduce emissions of criteria and hazardous air pollutants on a case-by-case basis using available equipment, devices, methods, or techniques. The applicability of BAT to each of the sources proposed in the subject application is discussed for each proposed source.

### *Amine Unit*

*VOC Assessment*

The amine unit will remove $CO_2$ from the NGLs by putting the NGL stream in contact with a lean amine solution in a contact tower. The amine solution has a natural affinity for $CO_2$ via absorption. The rich amine solution leaving the contactor tower will be sent to a flash tank and then an amine regeneration system where through heat and distillation, the $CO_2$ will be removed from the rich amine solution. The proposed project includes the addition of one (1) 300 Gallons per Minute (GPM) amine sweetening unit (Source ID 205).

The amine unit's flash tank emissions will be controlled by a VRU compressor (Source ID C207) and a 1,359 MMBtu/hr elevated flare (Source ID C205) as back up (when the VRU is down). The control efficiency of the flash gas is 99.90%. The flare is a combustion device that destroys vapors, such as VOCs. The VOCs are converted to carbon dioxide and water through a combustion reaction. VRU's remove any vapors that could be emitted from the vessel that they are controlling. The VRU is able to create suction pressure on the vapor and then compresses the gas back into a pipeline. In the case of an amine unit, the vapors released from the flash tank and still vent would be compressed and sent back into the pipeline for further processing.

The regenerator vent emissions will be controlled by a 6.81 million British thermal units per hour (MMBtu/hr) thermal oxidizer. The control efficiency of the thermal oxidizer for the still vent is 99%. Thermal oxidizers combust VOC's from the inlet vapor stream. Through combustion, VOCs are converted into carbon dioxide, water vapor and small quantities of other compounds. Both the flash tank and regenerator vent are emission points from the process. ETC will operate the VRU, thermal oxidizer, and facility flare using best operating practices and will follow all manufacturer specifications.

***Heaters***

*NOx Assessment*

The proposed project includes the addition of three (3) 40.92 MMBtu/hr Heat Medium Oil (HMO) heaters (Source ID 034-036). These heaters will provide heat to various users throughout the plant which include the inlet gas preheater, condensate stabilization system, deMethanizer trim reboiler, deEthanizer reboiler, and Amine regeneration reboiler. The BAT for the HMO heaters is utilizing Low NOx Burners (LNBs) for the heaters as well as conducting good combustion practices. The LNB will be designed to meet an emission rate of 9 ppmdv NOx at 3% $O_2$. ETC will conduct annual tune ups as well as conduct portable analyzer tests for NOx, every 3 years, as outlined in the GP-1 permit.

During its evaluation of the proposed heaters, the Department obtained publicly available information which indicated that natural gas burners with heat input ratings between approximately 10 MMBtu/hr and 42 MMBtu/hr were currently available and capable of achieving <5ppm $NO_X$ with FGR and without selective catalytic reduction (SCR). In its second Technical Deficiency Letter dated August 28, 2025, the Department requested that ETC evaluate and revise the BAT analysis, as necessary, for the three (3) proposed HMO heaters rated at 40.92 MMBtu/hr. In its response, ETC determined that although there is publicly available information for natural gas burners using FGR being rated capable of achieving <5 ppm NOx, there is no publicly available documentation demonstrating the achievement of 5 ppm NOx standard once burners were installed and operating. After reviewing the costs associated with reducing NOx emissions from 9 ppm to 5 ppm, at a capital expense of $200,000 per HMO heater, it has been determined that implementing 5 ppm heaters is not cost-effective, as the control cost is approximately $20,000 per ton of NOx removed. As such, the Department has determined that ETC's proposal to construct and operate three (3) 40.92 MMBtu/hr Heat Medium Oil (HMO) heaters, each with Low NOx Burners (LNBs) for the heaters as well as installing, maintaining, and operating with good combustion practices and guaranteed $NO_X$ emissions rates of 9 $ppm_{vd}$, respectively, constitutes BAT for the proposed heaters .

*CO & VOC Assessment*

The main sources of CO and VOC emissions from the HMO heaters are from combustion of fuel gas. ETC will install and maintain good combustion practices while operating the HMO heaters at the plant. ETC will comply with the 50 ppm CO at 3% $O_2$ as BAT for CO. ETC will conduct an annual tune up as well as periodic monitoring on the heaters every three years.

*$SO_2$ and PM Assessment*

ETC found that potential add-on controls for $SO_2$ include wet/dry scrubbing and add-on controls for PM species include cyclones, baghouses, and electrostatic precipitators (ESP) but these add-ons are technically infeasible because there is very little sulfur and filterable PM contained in the exhaust gas. In addition, ETC found that no add-on controls have been implemented on similar units of any size. Low sulfur fuel (i.e., natural gas) is the most effective way to minimize sulfur emissions from the unit. The use of this fuel also results in very low, and largely very fine, quantities of PM. As such, the Department has determined the use of natural gas constitutes BAT for these pollutants.

***Blowdown, Venting, and Tank Emissions***

The proposed project includes sources that vent gas as part of their normal operation, such as compressor venting, and miscellaneous blowdowns (planned [e.g., maintenance related] or unplanned). Some of these blowdowns cannot be safely routed to a pipeline for control due to safety concerns. These facility maintenance blowdowns account for less than 1% of the total potential blowdown volume for the project. To maximize control efficiency, ETC will control blowdown emissions (where appropriate) by utilizing a VRU and elevated flare. ETC will implement management practices to minimize maintenance blowdown emissions. Note that for facility maintenance blowdowns, emissions are unable to be captured and controlled for safety reasons. Table IV highlights the streams that are controlled by VRU and the facility flare as back up. ETC will utilize good operating practices to limit blowdown emissions and will route these streams (where feasible) to a VRU and utilize the flare as back up. ETC will develop and implement blowdown best management practices that will result in the minimization of blowdown emissions.

***Table IV: Blowdown Control Summary***

| Stream | Control I | Control II |
|---|---|---|
| Purge Gas[1] | Flare | - |
| Residue Gas Compressor Blowdowns | VRU | Flare |
| Closed Drain Vapors | VRU | Flare |
| Residue Compressor Rod Packing | VRU | Flare |
| Centrifugal Dry Compressor Seal | VRU | Flare |

1. Stream can contain oxygen, therefore not useful to route back to the inlet of the plant for processing
2. Assumed 5% VRU downtime

According to §60.5412a(d)(2) and §60.5412b(a)(2), federal regulations require vapor recovery devices to be designed and operated to reduce mass content of VOC by 95%. ETC utilized the 5% downtime assumption to conservatively estimate emissions. ETC has proposed to send the gas vented to the VRU system during its downtime for maintenance outages to the flare, which will achieve a removal efficiency of 98%. Therefore, ETC is proposing a control system with an overall DRE 99.90%, demonstrating BAT in line with previous determinations by the agency. As such, the Department has determined this constitutes BAT for the control of VOC, HAP, and methane ($CH_4$) from blowdowns, venting, and tanks for Cryo II.

***Fugitive Emissions Components***

The proposed project contains emissions from various fugitive component leaks, such as, but not limited to flanges, connectors, valves, etc. The main sources of VOC emissions from the fugitive sources are the venting of gas in the pipeline. The gas contains VOC and when the various fugitive components leak, the gas is emitted to the atmosphere.

ETC is required to implement the requirements specified by the Texas Commission on Environmental Quality (TCEQ) in its *28VHP LDAR Program* and implement the piping construction standards specified in the TCEQ *Air Permit Technical Guidance for Chemical Sources - Fugitive Guidance* (APDG 6422v2; Revised 6/2018).

On April 13, 2026, ETC provided via email the following assumptions and requirements utilized from the TCEQ guidance document to arrive at the following control efficiencies:

- *Valves: No change.*
- *Pump seals: applied 75% control efficiency with the "difficult to monitor" provision in the Table V notes (Endnote #1) to the TCEQ guidance document.*
- *Other gas vapor: this is meant to represent relief valves, OEL's, Sampling connections. Applied 97% control due to being monitored at 500 ppm, 28 CNTQ factors were utilized as per Table VI in the TCEQ Guidance document.*
- *Other (refrigerant): applied 75% control efficiency with the "difficult to monitor" provision in the Table V notes (Endnote #1) to the TCEQ guidance document.*
- *Pump seals – light oil: assumed, conservatively, lower with the "difficult to monitor" provision in the Table V notes to the TCEQ Guidance document*
- *Flanges and Connectors: 97% control due to being monitored at 500 ppm, 28 CNTQ factors were utilized as per Table VI in the TCEQ Guidance document*

For valves equal to or greater than 1" in diameter, ETC will utilize valves designated as *Low-Emissions Valve* (or *Low-E Valve)* which are warranted by the manufacturer(s) to either not emit greater than 100 ppm of fugitive emissions within the first seven (7) years of service, valves that have been tested by the manufacturer or qualified testing firm to not emit greater than 500 ppm at any time (but 100 ppm on average), and valve extensions (valves of the same type, stem motion, tolerances, surface finishes, loading arrangement, and stem (packing) and body seal material, design, and construction). ETC plans to install Low-E Valves where applicable and available within the proposed project's design. The fugitive PTE will be calculated with the conservative assumption that the project's design will not incorporate any of the references Low-E Valves. Gas leak emission factors will continue to be from the 1995 Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017) Table 2-4 and each component's control efficiency resulting from implementation of the NSPS OOOOb's LDAR program will continue to be determined based on "TCEQ - Control Efficiencies for TCEQ Leak Detection and Repair Programs" (rev. 07/18). ETC is required to utilize welded or flanged connections on piping smaller than two-inch diameter and conduct hydraulic testing of new and reworked piping connections. New and reworked valves, piping, compressor systems, and pump systems will be required to conform to standards of the American Petroleum Institute (API), American National Standards Institute (ANSI), American Nationals Society of Mechanical Engineers (ASME), or equivalent code.

ETC is required to also implement an enhanced facility-wide leak detection and repair (LDAR) program which is a quarterly leak detection using 40 CFR Part 60, Appendix A-7, Method 21 on connector and flange components. This method and frequency will supersede the previous LDAR requirements. Although EPA indicates in its *Background Technical Support Document for the Final New Source Performance Standards: 40 CFR Part 60 Subpart OOOOa* (May 2016) that semi-annual LDAR using OGI can achieve a 60% reduction in fugitive emissions, given the difference in instrument detection levels (approximately 10,000 ppm for OGI and 500 ppm for Method 21) it is the Department's position that utilizing Method 21 will ensure that the estimated reductions are achieved in practice. ETC will follow the Leak Detection and Repair requirements of NSPS OOOOb to satisfy BAT. ETC noted in the application that EPA recently completed an evaluation of emission reductions and determined the LDAR program finalized under NSPS Subpart OOOOb is the best system of emissions reduction.

ETC will be required to seal open ended valves and lines and minimize leaks from those components. ETC is also required to inspect and maintain pressure safety valves (PSVs) and ensure the PSVs are in good working order after a relief event including retesting and certification of the PSV by a valve contractor.

Lastly, since equipment components associated with the Cryo II project constitute *process unit equipment affected facilities* under 40 CFR Part 60 Subpart OOOOb, bimonthly monitoring surveys will be required using OGI pursuant to 40 CFR §60.5400b(b)(1).

***Facility Flare Emissions***

The proposed project at the facility includes a facility elevated flare (Source ID C205) with a control efficiency of 98% that will control various streams at the facility related to the additional equipment installed at the plant. Products of combustion such as NOx, CO, PM, SOx, etc. are produced from the facility flare. ETC will follow the provisions as outlined in NSPS Subpart A 60.18 and will operate the facility flare utilizing best engineering practices.

***Emissions Estimates***

Emissions from the proposed project and associated equipment were estimated by ETC using AP-42 emissions factors, ProMax simulations, manufacturers' equipment ratings and emission guarantees, an inlet extended gas fractional analysis of a gas samples taken from Cryo I, and the specified maximum gas throughput. The fractional gas analysis is presented in *Table V*. Emissions estimates for the proposed equipment in conjunction with total facility-wide PTE are presented in *Table VI*.

The Cryo Plant Inlet Gas gas analysis used for the PTE calculations and ProMax modeling is not a spot sample. Instead, ETC utilized a representative sample to account for compositional variability in the gas currently received by the existing cryogenic unit (Cryo I). ETC provided the following inlet gas composition methodology via email on April 28, 2026:

> *The representative gas composition for the Rev Cryo II facility Potential to Emit (PTE) calculations was determined via ProMax process simulation using gas composition readings sourced from the Galaxy and Pike gathering station outlets (upstream facilities supplying gas to the Revolution facility). The simulation evaluated the gas stream under varying ambient conditions to ensure a conservative and accurate inlet profile. A comparative analysis of this composition against five-year historical records indicates minimal to no variability, confirming the data as a reliable baseline for emission modeling. This composition served as the primary input for calculating the facility's PTE.*
>
> *To ensure ongoing compliance, actual emissions will be determined based on an average of the four quarterly inlet gas samples collected per the facility operating permit conditions. The average of these four samples will be used as the inlet gas composition to run a Promax process simulation generating emission rates for other streams/equipment within the facility. Those calculated emission rates will then be applied to process emission sources based on recorded hours of operation.*

The compositional variability is a result of gas being sent to the facility from multiple compressor stations. The volume of gas received from any individual compressor station fluctuates on a regular basis and therefore a spot sample is not properly representative of the inlet gas's typical composition. The proposed cryogenic unit (Cryo II) will receive the same inlet gas as Cryo I.

*Table V: ETC Rev Cryo – Inlet Gas Fractional Analysis*

| Component | Mol. % | Wt. % |
|---|---|---|
| Methane | 77.2557 | 59.8889 |
| Ethane | 15.0134 | 21.8145 |
| Propane | 5.0434 | 10.7464 |
| i-Butane | 0.5083 | 1.4275 |
| n-Butane | 1.1630 | 3.2665 |
| i-Pentane | 0.1976 | 0.6888 |
| n-Pentane | 0.2533 | 0.8830 |
| n-Hexane | 0.1413 | 0.5882 |
| n-Heptane | 0.0103 | 0.0498 |
| n-Octane | 0.0037 | 0.0204 |
| Benzene | 0.0011 | 0.0042 |
| Toluene | 0.0009 | 0.0040 |
| Ethylbenzene | 0.0003 | 0.0015 |
| Nonanes | 0.0005 | 0.0031 |
| Decanes+ | 0.0046 | 0.0316 |
| Nitrogen | 0.3579 | 0.4845 |
| Carbon Dioxide | 0.0442 | 0.0940 |
| **Total** | **~100.00** | **~100.00[a]** |

[a] The inlet gas contains approximately 17.72% VOC and 0.60% HAPs by weight.

## CONCLUSION AND RECOMMENDATION

Based on the Department's evaluation of its application for Plan Approval, responses to technical deficiencies, supporting documentation, emissions calculations, and proposed technology, ETC has demonstrated that the air contamination sources and air cleaning devices associated with proposed Cryo II to be constructed at the Revolution Cryogenic Plant in Smith Township, Washington County meet the Best Available Technology requirements of 25 Pa. Code Chapter 127. Therefore, the Department intends to issue the subject Plan Approval PA-63-01001B with the special conditions therein specified for a term of 18 months from the date of issuance. The notice of intent to issue Plan Approval PA-63-01001B was published on May 23, 2026, thus commencing the 30-day public comment period. I recommend that the draft permit package is placed on the Department's community information webpage.

***Table VI: Facility-wide PTE***

| Source | Source ID | VOC | $NO_x$ | CO | $CH_3OH$ | HCHO | Benzene | HAPs | $PM_{10}$ | $PM_{2.5}$ | $SO_x$ | $CO_2e$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Amine Vent (AMINE-002) | *205* | 0.64 | - | - | 0.19 | - | 0 | 0.19 | - | - | - | 23,844 |
| Flare (FLARE-002) | *C205* | - | 1.25 | 5.68 | - | - | - | - | 0 | 0 | 0.01 | 666 |
| Thermal Oxidizer (THERM-002) | *C206* | - | 0.79 | 0.66 | - | - | - | - | 0.06 | 0.06 | 0 | 970 |
| Fugitive Emissions – Component Leaks | *703* | 5.28 | - | - | - | - | - | 0.12 | - | - | - | 151 |
| Emissions – Blowdowns | *602* | 2.46 | - | - | - | - | - | 0.08 | - | - | - | 235 |
| Regen Gas Heater (HTR-006) | *402* | 0.76 | 0.48 | 1.61 | - | 0 | 0 | 0.07 | 0.52 | 0.52 | 0.02 | 4,636 |
| NGL Regen Heater (HTR-007) | *402* | 0.76 | 0.48 | 1.61 | - | 0 | 0 | 0.07 | 0.52 | 0.52 | 0.02 | 4,636 |
| HMO Heater (HTR-008) | *034* | 3.44 | 2.15 | 7.29 | - | 0.01 | 0 | 0.34 | 2.37 | 2.37 | 0.11 | 20,987 |
| HMO Heater (HTR-009) | *035* | 3.44 | 2.15 | 7.29 | - | 0.01 | 0 | 0.34 | 2.3 | 2.3 | 0.11 | 20,987 |
| HMO Heater (HTR-010) | *036* | 3.44 | 2.15 | 7.29 | - | 0.01 | 0 | 0.34 | 2.3 | 2.3 | 0.11 | 20,987 |
| Catalytic Heaters | *402* | 0.02 | 0.37 | 0.31 | - | 0 | 0 | 0 | 0 | 0 | 0 | 31 |
| Gas Venting | *602* | 0.19 | - | - | - | - | - | 0 | - | - | - | 70 |
| *Total (Cryo II)* | | *20.44* | *9.8* | *31.76* | *0.19* | *0.05* | *0* | *1.55* | *8.2* | *8.2* | *0.38* | *98,202* |
| *Total (Cryo I)* | | *29.09* | *30.6* | *35.30* | *0.03* | *0.05* | *0.01* | *2.51* | *8.09* | *8.09* | *0.38* | *80,998* |
| ***Total*** | | ***49.53*** | ***40.40*** | ***67.06*** | ***0.21*** | ***0.09*** | ***0.02*** | ***4.06*** | ***16.29*** | ***16.29*** | ***0.76*** | ***179,200*** |

1. $PM_{10}$ and $PM_{2.5}$ emissions are filterable + condensable.
2. Emissions from loading and unloading of condensate are included in Storage Tanks totals.
3. Emissions from the moisture analyzer are included in blowdown emissions.
4. Total PTE will be included as facility-wide emission limitations in this plan approval.