



TRC
21 Griffin Road North
Windsor, CT 06035
Main 860.298.9692

Memorandum

To: Rickey Bouffard (CTDEEP)

From: Albert Wilder (TRC), Dana Lowes-Hobson (TRC)

Subject: AGT Cromwell VOC RACT Consent Order (CO) Compliance Strategy

Date: September 27, 2021

CC: Phillip Wiedenfeld (Enbridge), Angela Beeson (Enbridge), Barry Goodrich (Enbridge), Kathryn Brown (TRC), Lakisha Stephenson (CTDEEP), Seng Phouthakoun (CTDEEP)

Project No.: 456494

On behalf of Algonquin Gas Transmission (AGT), TRC is proposing this strategy to comply with RCSA 22a-174-32 (VOC RACT), in response to Consent Order No. 2525, (the Consent Order) for the Cromwell Compressor Station (the facility). TRC has reviewed potential and actual emissions of “non-excludable” volatile organic compound (VOC) emissions for the last seven (7) full calendar years (CY) starting with CY 2014 to assess the best strategy for compliance. TRC is requesting that CTDEEP provide feedback to this proposed approach in order to prepare the final VOC RACT compliance plan and associated forms.

The Cromwell Compressor Station is in a serious nonattainment area for ozone. According to the Consent Order, potential “non-excludable” VOC emissions from the Cromwell Compressor Station exceeded the 50 ton per year (tpy) threshold found in RCSA 22a-174-32(b)(1)(A) in 2014. As presented in Table 1 (attached), from 2014 and every year since actual “non-excludable” VOC emissions have not exceeded the 50 tpy potentials threshold found in RCSA 22a-174-32(b)(1)(A).

As presented in Table 2 (attached), the calculated VOC potential emissions for Cromwell Compressor Station have been reduced following source changes made to upgrade the facility and as part of a project completed in 2019 to comply with RCSA 22a-174-22e (the NOx RACT Project). The project included the removal of six (6) registered reciprocating engines, installation of two new gas-fired turbine driven compressor units equipped with dry seals (NSR Permit No. 043-0035 and 043-0036), and replacement of wet seals with dry seals on an existing gas-fired turbine driven compressor unit (NSR Permit No. 043-0006), all of which are consistent with the 2016 EPA Control Techniques Guidelines (CTGs) for the Oil and Natural Gas Industry to reduce emissions from VOC sources.

TRC understands that “excludable” emissions of VOC at the Cromwell Compressor Station are combustion emissions from the natural gas-fired turbines, heaters, and emergency generator engine per RCSA 22a-174-32(b)(3)(D)¹. In accordance with RCSA 22a-174-32(b)(4), such “excludable” sources have limited requirements under VOC RACT and, except for subparagraph (B) of subdivision (d)(2) and subsections (f) and (g) of Sec. 22a-174-32, no other provisions of Sec. 22a-174-32 shall apply to the owner or operator of VOC emitting equipment which is identified in, or subject to any requirement set forth in, subparagraphs (A) through (E) of subdivision (3) of Sec. 22a-174-32.

TRC therefore proposes to limit actual “non-excludable” VOC emissions to less than 50 tpy by requesting CTDEEP issue an individual permit or order in accordance with RCSA 22a-174-32(c)(1), as actual, “non-excludable” VOC emissions have been less than 50 tpy in the last 7 full calendar years. Under this option TRC will provide the following:

1. Written documentation that actual “non-excludable” VOC emissions did not exceed 50 tpy in every calendar year from January 1, 2014 to December 31, 2020, in accordance with RCSA 22a-174-32(c)(2) in lieu of the 1995 time-frame referenced. TRC will exclude combustion emissions sources, since, as discussed above, such sources are not subject to the requirements under RCSA 22a-174-32(c)(1); and
2. A document which includes:
 - a. A description of each piece of VOC-emitting equipment at the premises, including “excludable” sources, in accordance with RCSA 22a-174-32(c)(2) and RCSA 22a-174-32(d)(2)(B).
 - b. The maximum rated capacity of each piece of VOC-emitting equipment, in accordance with RCSA 22a-174-32(c)(2) and RCSA 22a-174-32(d)(2)(C);
 - c. The total amount of potential “non-excludable” emissions of VOC, expressed in tons per year, in accordance with RCSA 22a-174-32(c)(2) and RCSA 22a-174-32(d)(2)(D); and
 - d. A certification, signed by the person who prepared the compliance plan, the owner of the premises, and the operator of the premises, in accordance with RCSA 22a-174-32(c)(2) and RCSA 22a-174-32(d)(2)(E).

Items 2a and 2b listed above will be addressed by providing an inventory that will include the following with maximum rated capacity or applicable process information:

- Individual combustion equipment,
- Individual storage tanks and vessels,
- Truck loading and parts washer,
- Gas release events, and
- Piping components by service category (e.g., natural gas service, pipeline liquids service, etc).

Item 2c listed above is addressed in Table 2 (attached) which presents the reductions in potential VOC emissions over the last several years at the Cromwell Compressor Station, as well as the 50 tpy cap on “non-excludable” VOC emissions Algonquin is requesting. Information from Table 2 will be included

¹ Acknowledged via email from CTDEEP on September 9, 2021.

in the VOC RACT compliance application package along with a signed certification that will satisfy item 2d above.

Please confirm this strategy is acceptable to CTDEEP and/or provide feedback on any additional requirements.

We understand the Consent Order was signed by the CTDEEP Deputy Commissioner on August 27, 2021 and received by AGT on September 2, 2021. The VOC RACT Compliance Plan is due to CTDEEP within sixty (60) days of that signature date which is November 1, 2021. TRC understands if CTDEEP does not find this proposed compliance strategy acceptable or does not provide feedback in a timely manner, an extension to this deadline may be negotiated.

ATTACHMENTS

Table 1

Cromwell Compressor Station VOC Emissions Summary								
VOC Actual Emissions (TPY) Per Source Type and Year								
Source Type	2014	2015	2016	2017	2018	2019	2020	Explanation of Source/Change in Emissions
Combustion from Reciprocating Engines (removed in 2019), Turbines, NSR Permitted Sources	16.3	18.3	40.2	29.2	26.6	13.8	1.8	The Mars 100 Turbine was commissioned in 2016 as part of the AIM Project. In 2019, two (2) turbines were commissioned and the six (6) reciprocating engines were removed as part of the NOx RACT Project.
Combustion from Permit-By Rule and Permit Exempt Sources	0.004	0.006	0.12	0.010	0.002	0.090	0.03	Includes ancillary equipment such as a natural gas fired emergency generator, three natural gas fired fuel gas heaters, a natural gas fired boiler, and several natural gas fired space heaters.
Gas Releases	0.08	0.12	0.10	1.7	2.7	2.7	0.8	Replacement of wet seals with dry seals on existing compressor unit as part of the NOx RACT Project in 2019.
Fugitive Emissions Sources	4.77	4.77	28.56	13.29	13.3	13.29	13.28	Includes ancillary equipment such as separator vessels, storage tanks and parts washer, as well as fugitive emissions from truck unloading and piping components.
Premise Actual Emissions	21.17	23.24	69.01	44.16	42.65	29.80	15.83	
Actual Emissions from "Excludable" Sources	(16.3)	(18.3)	(40.3)	(29.2)	(26.6)	(13.8)	(1.8)	
Actual Emissions from "Non-Excludable" Sources (<i>Premise Actual Emissions - Actual Emissions from Excludable Sources</i>)	4.85	4.89	28.67	14.99	16.04	15.95	14.03	VOC RACT Actual Emissions calculated in accordance with RCSA 22a-174-32(b)(3).

Table 2

Cromwell Compressor Station VOC Emissions Reductions Summary					
Source Type	Pre-Premise Upgrades & Pre-NOx RACT Project (TPY)	NOx RACT Project Nov 2017 Application (TPY)	Post-Premise Upgrades & Pre-NOx RACT Project (TPY)	Source Description	Post-Premise Upgrades & NOx RACT Project Emissions Reductions
Reciprocating Engines (removed in 2019), Turbines, NSR Permitted Sources	238.3	16.6	11.7	"Excludable" - Combustion emissions from compressor drivers.	NOx RACT Project Nov 2017 Application assumed VOC PTE of 3.94 TPY each from the two Centaur 40 turbines (Permit Nos. 043-0005 and 043-0006). However these permits limit emissions of VOC from each turbine to 1.5 TPY. Updating the VOC PTE to the permit limits for those two turbines results in a 4.9 TPY reduction in potential VOC emissions from turbine combustion.
Permit-By Rule and Permit Exempt Sources	1.4	1.03	1.03	"Excludable" - Includes combustion emissions from ancillary equipment such as a natural gas fired emergency generator, three natural gas fired fuel gas heaters, a natural gas fired boiler, and several natural gas fired space heaters.	
Gas Releases	74.73	58.2	36.0	"Non-Excludable" - Venting emissions from facility blowdowns, compressor unit blowdowns, and compressor seals.	Replacement of wet seals with dry seals on existing compressor unit (NSR Permit No. 043-0006) occurred in 2019, which results in 22.2 TPY reduction in VOC emissions from gas releases.
Fugitive Sources	14.05	11.45	11.45	"Non-Excludable" - Includes fugitive emissions from ancillary equipment such as separator vessels, storage tanks and parts washer, as well as fugitive emissions from truck unloading and piping components.	
Potential Emissions from "Excludable" Sources	239.8	17.6	12.8	"Excludable" emissions of VOC per RCSA 22a-174-32(b)(3)(D).	
Potential Emissions from "Non-Excludable" Sources	>50	>50	<50	"Non-Excludable" emissions of VOC calculated in accordance with RCSA 22a-174-32(b)(3).	Algonquin proposes an enforceable limit on "non-excludable" VOC emissions.