




SUBJECT: RACT II Equals RACT III Review Memo
Chance Aluminum Company
Williamsport, Lycoming County
TVOP 41-00013

TO: Muhammad Q. Zaman 
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Procedural History

As part of the Reasonably Available Control Technology (RACT) regulations codified at 25 Pa. Code §§ 129.111—129.115 (relating to additional RACT requirements for major sources of NO_x and VOCs for the 2015 ozone NAAQS) (RACT III), the Pennsylvania Department of Environmental Protection (Department) has established a method under § 129.114(i) (relating to alternative RACT proposal and petition for alternative compliance schedule) for an applicant to demonstrate that the alternative RACT compliance requirements incorporated under § 129.99 (relating to alternative RACT proposal and petition for alternative compliance schedule) (RACT II) for a source that commenced operation on or before October 24, 2016, and which remain in force in the applicable operating permit continue to be RACT under RACT III as long as no modifications or changes were made to the source after October 24, 2016. The date of October 24, 2016, is the date specified in § 129.99(i)(1) by which written RACT proposals to address the 1997 and 2008 8-hour ozone National Ambient Air Quality Standards (NAAQS) were due to the Department or the appropriate approved local air pollution control agency from the owner or operator of an air contamination source located at a major NO_x emitting facility or a major VOC emitting facility subject to § 129.96(a) or (b) (relating to applicability).

The procedures to demonstrate that RACT II is RACT III are specified in § 129.114(i)(1)(i), 129.114(i)(1)(ii) and 129.114(i)(2), that is, subsection (i), paragraphs (1) and (2). An applicant may submit an analysis, certified by the responsible official, that the RACT II permit requirements remain RACT for RACT III by following the procedures established under subsection (i), paragraphs (1) and (2).

Paragraph (1) establishes cost effectiveness thresholds of \$7,500 per ton of NO_x emissions reduced and \$12,000 per ton of VOC emissions reduced as “screening level values” to determine the amount of analysis and due diligence that the applicant shall perform if there is no

new pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis. Paragraph (1) has two subparagraphs.

Subparagraph (i) under paragraph (1) specifies that the applicant that evaluates and determines that there is no new pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis and that each technically feasible air cleaning device, air pollution control technology or technique evaluated for the alternative RACT requirement or RACT emission limitation approved by the Department (or appropriate approved local air pollution control agency) under § 129.99(e) had a cost effectiveness equal to or greater than \$7,500 per ton of NO_x emissions reduced or \$12,000 per ton of VOC emissions reduced shall include the following information in the analysis:

- A statement that explains how the owner or operator determined that there is no new pollutant specific air cleaning device, air pollution control technology or technique available.
- A list of the technically feasible air cleaning devices, air pollution control technologies or techniques previously evaluated under RACT II.
- A summary of the economic feasibility analysis performed for each technically feasible air cleaning device, air pollution control technology or technique in the previous bullet and the cost effectiveness of each technically feasible air cleaning device, air pollution control technology or technique as submitted previously under RACT II.
- A statement that an evaluation of each economic feasibility analysis summarized in the previous bullet demonstrates that the cost effectiveness remains equal to or greater than \$7,500 per ton of NO_x emissions reduced or \$12,000 per ton of VOC emissions reduced.

Subparagraph (ii) under paragraph (1) specifies that the applicant that evaluates and determines that there is no new pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis and that each technically feasible air cleaning device, air pollution control technology or technique evaluated for the alternative RACT requirement or RACT emission limitation approved by the Department (or appropriate approved local air pollution control agency) under § 129.99(e) had a cost effectiveness less than \$7,500 per ton of NO_x emissions reduced or \$12,000 per ton of VOC emissions reduced shall include the following information in the analysis:

- A statement that explains how the owner or operator determined that there is no new pollutant specific air cleaning device, air pollution control technology or technique available.
- A list of the technically feasible air cleaning devices, air pollution control technologies or techniques previously evaluated under RACT II.
- A summary of the economic feasibility analysis performed for each technically feasible air cleaning device, air pollution control technology or technique in the previous bullet and the cost effectiveness of each technically feasible air cleaning device, air pollution control technology or technique as submitted previously under RACT II.

- A statement that an evaluation of each economic feasibility analysis summarized in the previous bullet demonstrates that the cost effectiveness remains less than \$7,500 per ton of NO_x emissions reduced or \$12,000 per ton of VOC emissions reduced.
- A new economic feasibility analysis for each technically feasible air cleaning device, air pollution control technology or technique.

Paragraph (2) establishes the procedures that the applicant that evaluates and determines that there is a new or upgraded pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis shall follow.

- Perform a technical feasibility analysis and an economic feasibility analysis in accordance with § 129.92(b) (relating to RACT proposal requirements).
- Submit that analysis to the Department (or appropriate approved local air pollution control agency) for review and approval.

The applicant shall also provide additional information requested by the Department (or appropriate approved local air pollution control agency) that may be necessary for the evaluation of the analysis submitted under § 129.114(i).

Facility Details

Chance Aluminum Company, located in the City of Williamsport, Lycoming County, is a cold roll mill aluminum coil sizing facility. The main processes at the facility include four rolling mills which progressively squeezes unrolled coils of aluminum into customer ordered thicknesses in a cold rolling process which is lubricated by the application of paraffin based lubricating oils. Friction in the rolling process causes the rolling mill temperatures to be high enough to volatilize, but not ignite, the lubricant.

The facility is major for VOC emissions only. This facility received a full compliance evaluation on April 4, 2023, with no violations noted.

The only sources subject to a RACT II as RACT III analysis at this facility are Sources P101, P102 and P104. The analysis is only for VOCs as the plant is not a major source of NO_x emissions. No modification or changes were made to any affected sources after October 24, 2016. Of the three applicable regulatory sections of RACT III, namely, §129.114(i)(1)(i), §129.114(i)(1)(ii), and §129.114(i)(2), §129.114(i)(1)(i)&(ii) were utilized.

The Chance Aluminum RACT II revised permit was approved by the US EPA and said approval was incorporated into the PA SIP and published accordingly on October 16, 2020. Please see the *Federal Register 85 FR65706* for publication of the approval and incorporation into the PA SIP.

Chance Aluminum submitted its RACT II as RACT III proposal on December 22, 2022.

Sources subject to § 129.114(i) - RACT II determination assures compliance with RACT III requirements

Source ID	Source Name	RACT III provision
P101	60" wide, Lowery Davis aluminum cold rolling mill (Mill #1)	§129.114(i)(1)(i), §129.114(i)(1)(ii)
P102	60" wide, Pittsburgh aluminum cold rolling mill (Mill #2)	§129.114(i)(1)(i), §129.114(i)(1)(ii)
P104	60" wide, United Engineering aluminum cold rolling mill (Mill #4)	§129.114(i)(1)(i)

The RACT II determination/requirements can be found in the attached RACT II review memo and at the following link:

[EPA Approved Pennsylvania Source-Specific Requirements | US EPA](#)

RACT II analysis performed by the Company

In their RACT II analysis, each source was evaluated for technical and economic feasibility. Chance relied on the US EPA Air Pollution Const Control Manual (Sixth/Seventh Editions) (APCCM) to identify potentially applicable technologies to control the low concentration of VOCs in the exhaust streams produced by the rolling processes. By calculation, during maximum production rate and based on exhaust system flow rates, the VOC concentration doesn't exceed 15 ppm from the processes. The low volatility of the rolling mill paraffinic lubricant contributes to the low emission rate. The control methods evaluated included refrigerated condensation, adsorption, adsorption-desorption, flaring, fluidized bed catalytic oxidation, and various thermal treatments outlined in the table further down. The Department concurs that Chance Aluminum conducted a very broad and detailed sweep of a hot of control technologies available in 2016. The table below shows a summary of the RACT II cost analysis.

Source ID	Source Name	Control Technology	VOC Emissions before Control	VOC Emissions after Control	Total Annual Cost of Control Eqpt	VOC (\$/Ton) Removal Cost
P101	Mill #1	Thermal Oxidation, No Heat Recovery	128.5	2.6	\$ 4,259,635	\$ 33,142
P101	Mill #1	Thermal Oxidation, 35% Heat Recovery	128.5	2.6	\$ 2,983,076	\$ 23,210
P101	Mill #1	Thermal Oxidation, 50% Heat Recovery	128.5	2.6	\$ 2,447,016	\$ 19,039
P101	Mill #1	Thermal Oxidation, 70% Heat Recovery	128.5	2.6	\$ 1,732,262	\$ 13,478
P101	Mill #1	Catalytic Oxidation, No Heat Recovery	124.6	6.6	\$ 2,893,606	\$ 23,225
P101	Mill #1	Catalytic Oxidation, 35% Heat Recovery	124.6	6.6	\$ 2,137,930	\$ 17,159
P101	Mill #1	Catalytic Oxidation, 50% Heat Recovery	124.6	6.6	\$ 1,922,070	\$ 15,427

Source ID	Source Name	Control Technology	VOC Emissions before Control	VOC Emissions after Control	Total Annual Cost of Control Eqpt	VOC (\$/Ton) Removal Cost
P101	Mill #1	Catalytic Oxidation, 70% Heat Recovery	124.6	6.6	\$ 1,565,863	\$ 12,568
P101	Mill #1	Regenerative Thermal Oxidation	128.5	2.6	\$ 1,391,572	\$ 10,827
P101	Mill #1	Adsorber	122.1	9.0	\$ 1,357,177	\$ 11,115
P102	Mill #2	Thermal Oxidation, No Heat Recovery	128.5	2.6	\$ 3,946,828	\$ 30,708
P102	Mill #2	Thermal Oxidation, 35% Heat Recovery	128.5	2.6	\$ 2,765,879	\$ 21,520
P102	Mill #2	Thermal Oxidation, 50% Heat Recovery	128.5	2.6	\$ 2,270,061	\$ 17,662
P102	Mill #2	Thermal Oxidation, 70% Heat Recovery	128.5	2.6	\$ 1,609,347	\$ 12,521
P102	Mill #2	Catalytic Oxidation, No Heat Recovery	124.6	6.6	\$ 2,683,373	\$ 21,537
P102	Mill #2	Catalytic Oxidation, 35% Heat Recovery	124.6	6.6	\$ 1,983,405	\$ 15,919
P102	Mill #2	Catalytic Oxidation, 50% Heat Recovery	124.6	6.6	\$ 1,784,105	\$ 14,320
P102	Mill #2	Catalytic Oxidation, 70% Heat Recovery	124.6	6.6	\$ 1,455,052	\$ 11,678
P102	Mill #2	Regenerative Thermal Oxidation	128.5	2.6	\$ 1,298,033	\$ 10,099
P102	Mill #2	Adsorber	122.1	9.0	\$ 1,323,938	\$ 10,843
P104	Mill #4	Thermal Oxidation, No Heat Recovery	25.8	0.5	\$ 2,285,281	\$ 90,384
P104	Mill #4	Thermal Oxidation, 35% Heat Recovery	25.8	0.5	\$ 1,638,411	\$ 64,800
P104	Mill #4	Thermal Oxidation, 50% Heat Recovery	25.8	0.5	\$ 1,367,587	\$ 54,089
P104	Mill #4	Thermal Oxidation, 70% Heat Recovery	25.8	0.5	\$ 1,008,633	\$ 39,892
P104	Mill #4	Catalytic Oxidation, No Heat Recovery	25.0	1.3	\$ 1,591,134	\$ 64,918
P104	Mill #4	Catalytic Oxidation, 35% Heat Recovery	25.0	1.3	\$ 1,204,308	\$ 49,135

Source ID	Source Name	Control Technology	VOC Emissions before Control	VOC Emissions after Control	Total Annual Cost of Control Eqpt	VOC (\$/Ton) Removal Cost
P104	Mill #4	Catalytic Oxidation, 50% Heat Recovery	25.0	1.3	\$ 1,095,113	\$ 44,680
P104	Mill #4	Catalytic Oxidation, 70% Heat Recovery	25.0	1.3	\$ 917,014	\$ 37,414
P104	Mill #4	Regenerative Thermal Oxidation	25.8	0.5	\$ 865,532	\$ 34,232
P104	Mill #4	Adsorber	24.5	1.8	\$ 876,941	\$ 36,509

Company’s RACT II equals RACT III Analysis

Chance Aluminum Company has proposed that RACT II satisfies the requirements of RACT III as there have been no changes or modifications to the facility since October 24, 2016. To satisfy RACT II equals RACT III, Chance Aluminum conducted an analysis of VOC emissions from Sources P101, P102 and P104.

For the RACT III analysis, Chance reviewed the US EPA Air Pollution Cost Control Manual Seventh Edition and numerous US EPA Reference documents, along with a previous facility permit application LAER determination performed for Source P103, to determine what control methods were available. Chance revisited the comprehensiveness of their RACT II evaluation and its detailed control technology historical overview for this facility.

However, for the 5 control technologies which were determined to be below 12,000 dollars per ton of VOC for RACT II, and therefore subject to 129.114(i)(1)(ii), the company completed a new cost analysis as required. Chance Aluminum updated costs of the RACT II analysis by incorporating any changes in the APCCM and by using appropriate inflation factors from either the Bureau of Labor Statistic Producer Price Index and/or the regional Consumer Price Index, as appropriate. Given the differences in the economic environment since RACT II, including but not limited to higher interest rates, higher fuel costs, and higher electricity costs, the Company’s analysis is conservative and the Department agrees with the conclusion that the control devices shown in the table below continue to be economically infeasible and are not RACT.

Source ID	Source Name	Control Technology	VOC Emissions before Control	VOC Emissions after Control	Total Annual Cost of Control Equipment	VOC Removal Cost (\$/Ton)
P101	Mill #1	Regenerative Thermal Oxidation	128.5	2.6	\$ 1,391,572	\$ 14,499
P101	Mill #1	Adsorber	122.1	9.0	\$ 1,357,177	\$ 12,867
P102	Mill #2	Catalytic Oxidation, 70% Heat Recovery	124.6	6.6	\$ 1,455,052	\$ 14,757

Source ID	Source Name	Control Technology	VOC Emissions before Control	VOC Emissions after Control	Total Annual Cost of Control Equipment	VOC Removal Cost (\$/Ton)
P102	Mill #2	Regenerative Thermal Oxidation	128.5	2.6	\$ 1,298,033	\$ 13,568
P102	Mill #2	Adsorber	122.1	9.0	\$ 1,323,938	\$ 12,607

Department’s Independent Analysis

The Department has reviewed source information, the control technologies and measures evaluated by Chance Aluminum Corp. The Department also performed an independent analysis which included, the Department’s continuous review of permit applications since the applicability date of RACT II, control technology internet searches, RACT/BACT/LAER Clearinghouse search, combined with the knowledge gained from the Department permitting staff participating in technical presentations by several vendors and manufacturers of pollution control technology, along with a review of EPA and MARAMA’s documents. Based on our review of these sources and documents, along with training and the expertise of the reviewing staff, the Department concludes that presently there are no new or updated air pollution control technologies available for the sources found at Chance Aluminum. The Department has determined that RACT II requirements for sources P101, P102 and P104 at Chance Aluminum listed in the preceding tables ensures compliance with requirement for RACT III for 25 Pa. Code §§ 129.111 - 129.115.

The cost analysis for VOC control during RACT II evaluation resulted in a cost of greater than \$12,000 per ton for 25 of the 30 above listed cases. Although not necessary, Chance Aluminum provided an updated cost analysis for all 30 control scenario cases on sources P101, P102, and P104 as shown in the first table above. The analysis showed cost effectiveness to be greater than \$12,000 dollars per ton for the five cases that were slightly less than \$12,000 under RACT II.

Public discussion

No discussions occurred with the EPA, the company, or the public beyond the initial application, which materially impacted a decision to include one or more sources under the RACT II is RACT III umbrella.

Conclusion

The Department has analyzed the applicant’s proposal for considering RACT II requirements as RACT III and also performed independent analysis. Based on the information provided by the applicant and independently verified by the Department, the Department determines that the RACT II requirements satisfy the RACT III requirements. The RACT III requirements are identical to the RACT II requirements and are as stringent as RACT II.

File: Chance Aluminum, Permits, TVOP, 41-00013
 Cc: Central Office, Air Quality Permits