

VIA ELECTRONIC-MAIL

October 7, 2026

Oklahoma Primary Aluminum
Attention: Ziad Fares
zfares@ega.ae
E 620 Road
Inola, OK 74036

Permit No. **2026-0100-C (PSD)**
Permit Writer: Alexandria Mills

SUBJECT: Application for an Initial Construction Permit for a Part 70 Source
Oklahoma Primary Aluminum ("OPA")
Oklahoma Primary Aluminum Facility
Facility ID No. 25367
Latitude 36.12278°N, Longitude 95.55526°W
Section 13, Township 19N, Range 16E, Rogers County, Oklahoma

Dear Mr. Fares:

This letter requests information DEQ needs to evaluate the emission rates in the application. The agency's permitting process is extremely technical and inherently iterative in nature, with agency staff requesting frequent clarifications and additional information from applicants. This is typical and part of the normal DEQ permitting process. This letter is not a rejection of the proposed approach and does not require OPA to use a particular estimation method. Rather, DEQ is requiring OPA to demonstrate that the specific model outputs submitted for this proposed facility are a reliable basis for the determinations DEQ must make before it can issue a construction permit.

On Wednesday August 19, 2026, ERM on behalf of OPA provided a summary via email of the Kensington Emissions model framework and validations as provided by Kensington Technology Inc. (KTI). Based on the updated submittal received on September 3, 2026, OPA has updated emission calculations based on the Kensington Emissions model. Per KTI, the Kensington Emissions model is based on heat and mass balance, empirical correlations, and consultant judgement to simulate operations. KTI has stated that the model has been validated against measured operational data.

Why the information is required before a permit is issued. In the September 3, 2026 submittal, the Kensington model is the stated basis for the potroom roof vent and gas treatment center stack emission factors for PM, SO₂, CO, NO_x, VOC, PAH, hydrogen fluoride (HF), and particulate fluoride; the anode bake furnace emissions of CO, NO_x, PM, SO₂, PSD-regulated fluorides, and HF; the casthouse furnace emissions of criteria pollutants other than SO₂; and the paste plant emission factors. These emission factors and resulting emission calculations are inputs to three determinations DEQ must make before construction begins, namely:

1. **BACT:** Federal BACT applies to each regulated NSR pollutant the facility would have the potential to emit in significant amounts. OAC 252:100-8-34(b)(1). State BACT applies to all regulated air pollutants emitted in quantities greater than 100 tons per year, including HF emissions. The application must contain the emission estimates and other information necessary to determine that BACT would be applied. OAC 252:100-8-35.1(b)(2); OAC 252:100-8-5(d)(1)(A). OPA has used model output within the BACT analysis itself which had the effect of reducing projected emissions as compared to the original submission. The model revised emission estimates which resulted in changes to certain assumptions. For instance, due to the model's lowering of the casthouse furnace

PM factor to 0.022 lb/ton, OPA concluded that add-on controls would not achieve further reduction. Further, OPA also concluded that the model "eliminates the need for a safety factor" for paste plant SO₂.

2. **Air quality impacts:** OPA must demonstrate that allowable emission increases would not cause or contribute to an exceedance of any NAAQS or the remaining available PSD increment. OAC 252:100-8-35(a)(1). The Kensington model outputs are the emission rates entered in the dispersion modeling.
3. **Soils and vegetative impacts:** The additional impact analysis of impairment to soils and vegetation, OAC 252:100-8-35.2(a), depends on the fluoride emission rates, for which the model is the stated basis.

OPA must submit all information necessary to perform any analysis or make any determination required under the PSD rules, pursuant to OAC 252:100-8-35.1(b)(1). This submittal must include the calculations on which the proposed facility's emission rates are based, as required by OAC 252:100-8-5(d)(2) and OAC 252:100-8-5(e)(3)(H). In order to verify the proposed Kensington emission calculation method, DEQ requests the following supplemental information:

1. **Inventory of Model-Derived Values:** A table of every emission factor or emission rate in Appendix B derived in whole or in part from the model, showing emission point, pollutant, value, units, model version and run date, and whether the value is used for potential to emit, a proposed BACT limit, or a modeling input. Where a model value was adjusted, such as PM₁₀ and PM_{2.5} ratios taken from AP-42, a journal article, similar permits (i.e. RBLC ID KY-0116), or operational safety factors, justify and show the adjustment. This is needed to identify which determinations depend on the model and to help reconcile any inconsistencies. For example, please reconcile the following inconsistency in the potline PM basis: ERM's response to DEQ comments on page 76 of the September 3, 2026 submission, state that the potline PM remains based on the prior BACT values of 4.88 lb PM/ton and 2.1 lb PM₁₀/ton and is not the result of the Kensington Model, while Appendix B identifies the Kensington model as the basis of potroom roof vent PM.
2. **Tabulation of Inputs:** A tabulation of every input used for this proposed facility to produce the emission estimates, with the source of each value identified as design specification, vendor guarantee, measured data from another facility, and/or consultant judgement. Include support documentation for measured data. Where an input was based purely on consultant judgement, state the basis for the value selected.
 - a. **Facility-Specific Inputs and Calculations:** The tabulation in item 2 should address, at a minimum: line current and voltage, current efficiency, pot shell design, suction gas flow rate and fume capture efficiency, number of anode changes, anode residence time in the pot room, alumina and anode composition including sulfur content, bath chemistry, dry scrubber and wet scrubber removal efficiencies, time allotted to working the pots, the anode bake furnace firing rate (2.11 GJ/tonne baked anode), anode bake furnace burner technology, and the coke and pitch sulfur content. ERM has stated that detailed engineering of the control equipment is still underway, therefore, please identify the control performance assumed in the model and whether it will be supported by a vendor guarantee.
 - b. For each emission unit type (potroom roof vents, gas treatment center stacks, anode bake furnaces, casthouse furnaces, and paste plant), provide at least one worked calculation per pollutant from those inputs to the reported factor, showing the equations and empirical correlations used and the range of conditions over which each correlation was developed.

This is needed because the rules require the calculations on which emission rates are based, not only the results. OAC 252:100-8-5(e)(3)(H) and OAC 252:100-8-5(d)(2).

3. **Variability and Sensitivity:** Explain each case for why a margin for variability was or was not applied to the model outputs and where applied, what the safety factor was. Given that the application states the model eliminates the need for a safety factor for paste plant SO₂, please explain why the model improved the confidence level in this case while a 25% safety factor is applied to the EGA Al Taweelah operating data used elsewhere. State whether each output represents a maximum short-term rate or a long-term average, and how anode effects and other non-steady state pot conditions are represented. For each consultant-judgement input, provide the emission rate recalculated across the plausible range of that input, and identify every case in which the result crosses a PSD significant emission rate or would change an applicability, BACT, or modeling conclusion. This is needed because proposed limits must be achievable under normal variability and short-term rates drive the NAAQS demonstration.
4. **Transferability Demonstration:** A comparison of each validation facility to the proposed facility on the parameters that control emissions, specifically: pot cell technology and design, line amperage and current efficiency, alumina and anode specifications, bath chemistry, feed system, fume capture arrangement and efficiency, and the type and design of each control device. State explicitly which validation facility or facilities support the estimate for each OPA emission point and identify every OPA emission point for which no comparable validated configuration exists.
5. **Predicted Versus Measured Results:** For each validation facility, a table by emission point and pollutant showing the model prediction, the measured value, the test method, number of valid runs, production rate and control device conditions during the test, and the percent difference. For each row, identify the model version used and the date the prediction was generated. State whether the validation facility was used in the development of the model. In addition, please provide the following:
 - a. **Development and Calibration Data:** For each validation facility, state whether any data from that facility, including tests other than those in the table requested above, were used for development and/or calibration of the model. For this request, a prediction is independent only if no data from the validation facility influenced the model structure, coefficients, default values, or site-specific inputs used to produce it.
 - b. **Summary Statistics:** Report the agreement statistics separately for the independent comparisons and for all other comparisons.
 - c. **Completeness:** Identify any other facility where model predictions have been compared to measured data but that is either 1) not included in and/or 2) did not agree with the validation set and explain why it was excluded.
 - d. **Source Documentation and Verification:** Identify any comparison that rests on a summary rather than a primary test report and provide the test reports where available. Identify any peer review, publication, third-party verification, or regulatory agency acceptance of the model, in whole or in part, and provide copies; if none exist, state so.

This validation review is needed to establish, in quantitative terms, how closely the model has matched measured data in an independent comparison to facilities that were not used to build or tune the model. DEQ needs the independent comparisons, shown separately, to confirm the model's outputs for the proposed Oklahoma facility are credible.

6. **Certification by Responsible Official:** A certification by a responsible official under OAC 252:100-8-5(f) covering the emission estimates and the material submitted in response to this request, together with identification of the engineer responsible for the calculations.

Response: Identify each response by emission point, using the emission point numbers in Appendix B of the application, and by pollutant. Where an item cannot be provided, state so expressly and explain why rather than omitting it.

DEQ will continue to review the application, however, a draft permit cannot be completed based on model-derived emission rate for the determinations described above unless the basis for that rate is provided.

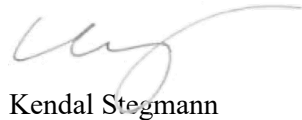
Please forward the requested information to:

Attention: Alexandria Mills
Oklahoma Department of Environmental Quality
Air Quality Division
707 N. Robinson
P.O. Box 1677
Oklahoma City, OK 73101-1677

Or via e-mail at Alexandria.Mills@deq.ok.gov

If you have any questions regarding this matter, please contact the permit writer at (405) 702-4195 or via e-mail at Alexandria.Mills@deq.ok.gov. Thank you for your cooperation.

Sincerely,



Kendal Stegmann
Division Director
AIR QUALITY DIVISION