Zac Kruger

Please find permit application review and comments attached.

Critical Review of Aluminum Dynamics Project and Permit Application

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As a resident with a family that resides in the vicinity of the planned development site I am dismayed at the overwhelming number of methodological and basic clerical errors that convey both scientific laziness and a lack of attention to detail within this application. Due to this I strongly recommend that you deny the permit sought by the applicant, ADI. Among the deficiencies, these are the most egregious that constitute grave endangering of public health and the environment in Arizona:

1. **Permit incorrectly filled out.** What appears to be an incorrect Primary Standard Industrial Classification Code was entered on Section 2.1 of the Permit Application (pg. 11). 3411 is shown on the form which SIC Code for an establishment primarily engaged in manufacturing "Metal Cans" from purchased materials per NAICS. This is obviously incorrect as the intended use of this site is NOT the manufacture of aluminum cans. If the most basic details cannot be completed correctly by ADI, then what if any confidence can we place in far more technical details contained herein?

2. **Fundamental Meteorological Data Deficiencies.** The permit application's reliance upon WRF prognostic model data due to the lack of any site-specific meteorological data is a critical flaw. This constitutes a fundamental violation of air quality modeling best practices (see EPA Guideline on Air Quality Models; 40 CFR Part 51 Appendix W) and undermines the scientific and regulatory defensibility of any Class I Permit Application.

   Without validation against site-specific observations the dispersion modeling results may vary significantly and over or under predict pollution concentrations, leading to:
   a. Inaccurate assessment of air quality impacts
   b. Potential non-compliance with ambient air quality standards
   c. Inadequate protection of public health

   Using unvalidated model output as the sole meteorological basis violates fundamental principles of atmospheric modeling that requires independent verification of model performance, quantification of uncertainties, and demonstration of data representativeness. These overwhelming insufficiencies are a blatant violation of scientific rigor. For this issue alone the permit should be denied.

3. **Inappropriate Background Concentration Selection.** The selection of background concentrations from Tucson and other remote areas represents a significant methodological error. The TSD fails to adequately justify why urban background values would be representative of the Benson plant location. A site near I-19 in Tucson is not representative of I-10 near Benson, which sees consistent heavy traffic from freight vehicles. This will very likely lead to underestimation of incremental impacts and masking of NAAQS exceedances and overall, fundamentally flawed cumulative impact assessments.

4. **Absence of Model Performance Evaluation.** A complete and total lack of comprehensive model validating that compares predictions to ambient measurements is simply unacceptable. While the report mentions qualitative wind rose comparisons and supplemental analyses, no quantitative model performance evaluation against observation data is provided. Probably because it doesn't exist. This blatant omission makes it impossible to assess model accuracy and undermines the entire technical basis for permit issuance.

5. **Undefined HCl Monitoring Requirements.** Overwhelmingly vague treatment of ambient HCl monitor requirements is not acceptable. This application lacks:
    a. Specific monitoring site locations
    b. Monitoring frequency specifications
    c. Quality assurance procedures
    d. Real-world baseline monitoring data

6. **Technical Version Discrepancies.** The use of outdated MMIF version 3.3 instead of the recommended version 4.1 for meteorological processing introduces additional uncertainties. While justification is provided, no sensitivity analysis demonstrates that this choice does not affect results.

7. **Questionable Enforceability of Voluntary Emission Limitations.** ADI has accepted voluntary emission limitations on NOX and VOCs to avoid PSD review, but the permit documentation fails to demonstrate legal and practical enforceability. No clear enforcement mechanisms are detailed in the permit conditions. There is a total absence of continuous monitoring requirements specific to these voluntary limits. Without robust enforceability, the proposed facility's actual emissions could exceed PSD thresholds, totally circumventing major source review requirements. This seems like a blatant regulatory evasion through inadequately secured voluntary limitations.