

North Slope

Allowable Drill Rig Operation through Modeling and Monitoring

Drill Rig Policy Technical Working Group

Update:

ADEC Review of the Approach

Status

- Since the August 21, 2014 Drill Rig Workgroup Technical Subgroup meeting:
 - ADEC/AECOM have been working together to review the simulation (Monte Carlo and AERMOD) that led to the nominal fuel consumption values proposed.
 - Some adjustments to the approach have resulted.
 - ADEC/AECOM have largely reached consensus on the modeling approach (Monte Carlo & Rig Simulation).
 - Still have two fundamental points to land: background and appropriate results percentile.
- We are ready to pin down milestones and dates by which modelers reach full consensus.
- We will then be ready to move this to the Options Group.

Objective of Today's Meeting

- Discuss the original modeling presented at the August 21, 2014 Drill Rig Workgroup Technical Subgroup meeting and the final modeling that resulted from the review that has occurred since that time.
- Establish modeling detail milestones and dates.
- Establish Options working group milestones and dates.

Refinements to the Modeling

Original Proposal	Current
<p>Focused on drilling events lasting 2 to 3 weeks and deemphasized events >2 months.</p>	<p>More emphasis on drilling events > 2 months, but less emphasis on uncharacteristic results by focusing on a percentile of the results.</p>
<ul style="list-style-type: none"> • Modeled Stack Heights (H_s) ~24 m • Modeled Building Height (H_{bldg}) ~15.2 m • Modeled H_s/H_{bldg} ~1.5 	<ul style="list-style-type: none"> • Modeled Stack Heights (H_s) ~12 m • Modeled Building Height (H_{bldg}) ~8 m • Modeled H_s/H_{bldg} ~1.5
<p>In-Stack $\text{NO}_2/\text{NO}_x = 0.15$ to 0.30</p>	<p>In-Stack $\text{NO}_2/\text{NO}_x = 0.06$ to 0.10</p>
<p>Collocated Stacks</p>	<p>Some Stack Separation</p>
<p>Pad Size = 325 m x 100 m</p>	<p>Pad Size = 425 m x 150 m</p>
<p>Highly conservative background which double counts the impacts from drill rigs.</p>	<p>Background being reevaluated to focus more on non-modeled sources and less on modeled sources (drill rigs).</p>

Proposed Range of Nominal Fuel Consumption

- **Overview of Proposed Acceptable Operation
No Electrification - Based on Modeling (TRANSVAP)**

Drilling Category	Region	Nominal Fuel Consumption	
		Original Proposal	May Land in Range of
RDi	ANS	≤ 20,300 gal/day	~≤ 20-25,000 gal/day
DDi	ANS	≤ 12,200 gal/day	~≤ 12-19,000 gal/day
RDc	ANS	≤ 15,400 gal/day	~≤ 11-15,000 gal/day
DDc	ANS	≤ 9,000 gal/day	~≤ 6-10,000 gal/day

ANS = A-Pad Met. – Alaska North Slope

- **Electrification = no violation = all activities allowed**
- **Nominal Fuel Consumption ≠ Not-to-Exceed:**
 - Modeling indicates random excursions above nominal do not significant impact conclusions.

Still Conservatively Representative

- Worst-case ambient ozone for plume NO₂ transformation.
- Predicted impacts remain well above measured impacts – reliance on AERMOD/PRIME.
- Only a handful of pads (<4) are smaller than that modeled. Of those 4, they are only smaller seasonally.
- Maximum fuel consumption rates on rig with all emission units operating simultaneously:
 - Tier 0 and AP-42 emission factors + 1.15 safety factor.
 - Modeling short-term excursions above worst-case does not impact predicted fuel limits.
- Modeling results are dominated by drilling events lasting >3 months.
 - Most drilling events are 30 days or less.

Framework Path Forward

- **Problem Statement:**

Following all Appendix W guidelines as currently required, portable oil and gas operations are challenged in modeling compliance with the 1-hour NO₂ ambient air quality standard. All available monitoring data, however, shows they comply with the standards. How, then, should portable oil and gas operations be regulated within 18 AAC 50?

- **Options:**

- Not at all
- Differently
- Just as they are

Framework Path Forward

- **Status quo (just as they are) is not a good option due to:**
 - The “all applicable requirements” issue with Title V;
 - The uncertainty associated with discretion under 18 AAC 50.540(l) within the minor permitting program; and
 - The very complex and heterogeneous limitations, monitoring, recordkeeping, and reporting attending the existing program.
- **Doing it differently is a good option because:**
 - It solves the problems associated with status quo mentioned above;
 - The regulatory approach, to date, has been confusing and has not been uniformly understood;
 - It can be structured to remove uncertainty; and
 - All the information collected to date presents us with a rare opportunity to streamline a program ensuring its simplicity, uniformity in application, and robust protection of ambient air quality standards.

Framework Path Forward

- **Doing it differently:**

- Add a “generally allowed activities” (permit-by-rule?) or registration program for portable oil & gas operations
 - Within daily fuel use thresholds identified by modeling
 - With daily recordkeeping requirements
 - Other notification or administrative requirements
- Retain existing program for those operations that do not qualify for the program described above.

- **Proposed schedule moving forward:**

- Finalize and reach consensus on NS modeling results by January 15
- Finalize and reach consensus on CI modeling results by January 31
- Convene first Options Group meeting by February 13
- Move Options Group recommendation to broader group by March 31