

Oilfield Waste Disposal (OWD) Facilities Chapter 6, Section 2 Permitting Guidance Implementation



Overview

- WYPEC Tool
- Emission Estimation
 - New facilities
 - Existing facilities
- Implementation
 - New facilities
 - Existing facilities



WYPEC Tool

- AQD sponsored studies to establish relationship between VOC content of water at OWD facilities and air emissions.
- Resulted in development Wyoming Pond Emissions Calculator (WYPEC).
- Documents related to the study and model development are available on AQD's website.

WDEQ-AQD Model Development Project

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Establish correlation between pond VOC content and airborne concentrations to estimate future emissions



END PRODUCT: Easy-to-use software tool to predict OWD pond emissions for AQD permitting and emissions inventory programs

Model Development – Technical Approach



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Data Collection: Air/water sampling events at multiple facilities.





Flux Chambers



Open Path FTIR Air

Samplin

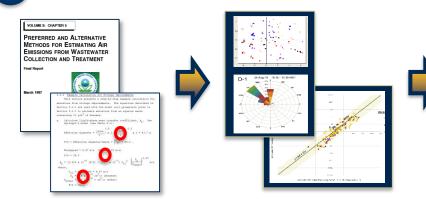
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On-site Meteorology



Predictive Model Development



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Water

Sampling



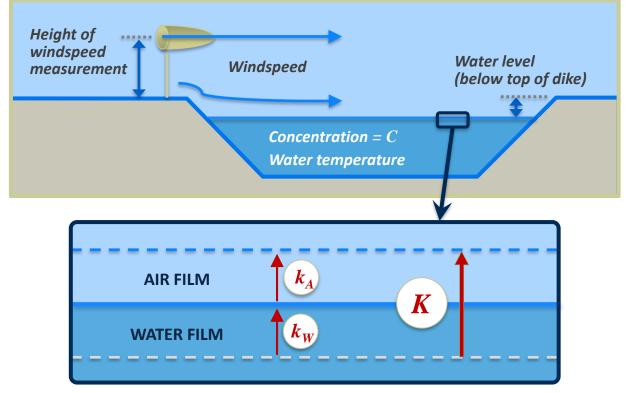


 TEXAS
 Institute of Renewable

 A&M
 Natural Resources

Two-Film Emission Models





 k_W and k_A depend on chemical species, meteorology, etc.

Emission flux is proportional to concentration:

 $F = K \cdot C$

K depends on Henry's Law and combination of mass transport coefficients across a water film, k_w , and air film,

$$\frac{1}{K} = \frac{1}{k_W} + \frac{1}{Hk_A}$$

 k_A



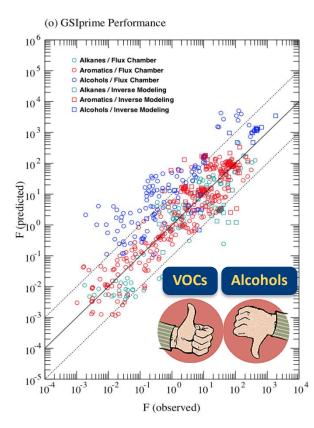
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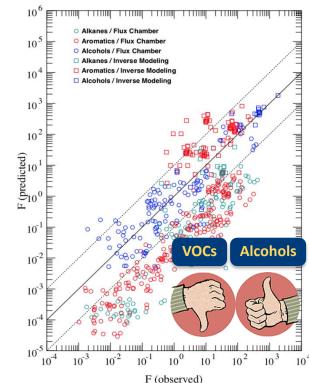
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2019 Oilfield Waste Disposal Pond Model Analysis

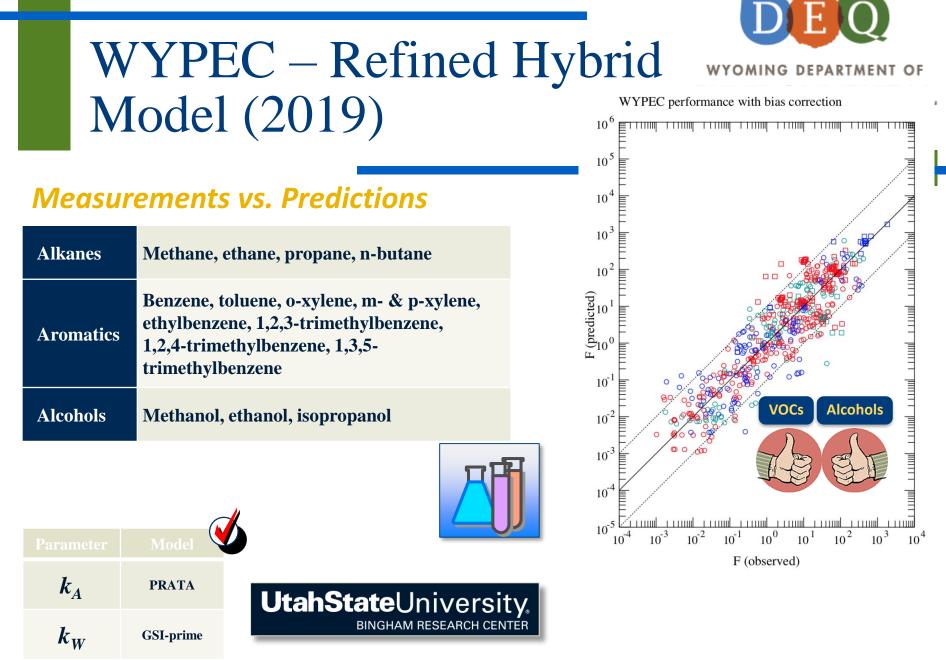
Best-Performing Models for Different Chemical Classes



(k) PRATA Performance









WYPEC Tool

- Draft Chapter 6, Section 2 OWD Facilities Permitting Guidance describes input methodology for modeling emissions from ponds at new and existing OWD facilities.
- Guidance applies to ponds/pits/basins at OWD facilities, but not other emissions units (i.e. engines, tanks, flares, etc.).



WYPEC Tool

- The implementation of the proposed guidance does not preclude the use of other pond emissions estimation methods.
- WYPEC results are just one part of a complete permit application, emissions inventory submission, or compliance demonstration.



Emission Estimation

- Key Guidance Features for Existing and New Facilities
 - WYPEC guidance provides the parameters the Division expects all applicants to address, regardless of the calculation method chosen.
 - Guidance is designed to be flexible and accommodate a variety of data input methodologies.



Implementation

- Guidance addresses three scenarios
 - Existing Facilities
 - Currently without permits for ponds
 - With Permits (have sampling conditions)
 - New Facilities



Title V

- If 12 months of sampling data indicates the facility is a major source under Chapter 6, Section 3, contact the Title V program immediately.
- Once NSR permit acknowledging Title V status is issued, a complete application should be submitted to Title V within 1-year.

Next Steps



- Division has taken comment from industry (making revisions to guidance)
- The Division will then advertise for public input on the proposed guidance.
- It is not necessary to wait for the guidance to be issued to submit an application.

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