

### 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

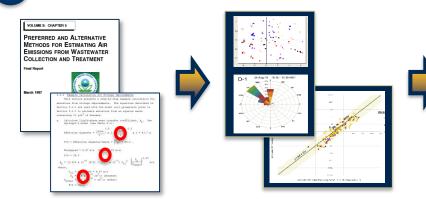
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On-site Meteorology



**Predictive Model Development** 



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Water

Sampling



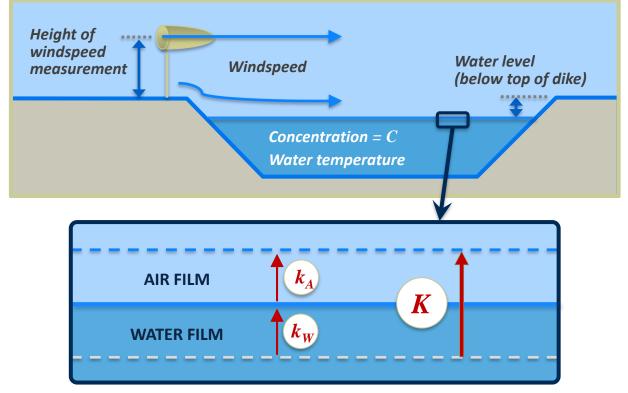


 TEXAS
 Institute of Renewable

 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,

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

 $k_A$ 



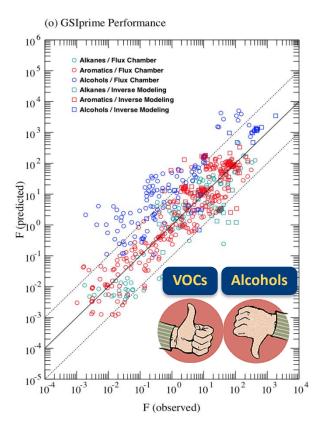
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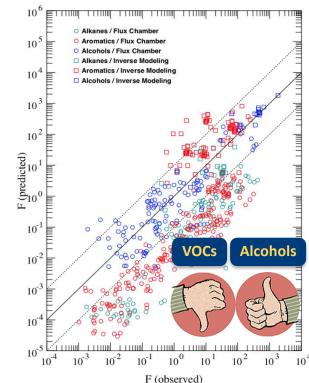
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### 2019 Oilfield Waste Disposal Pond Model Analysis

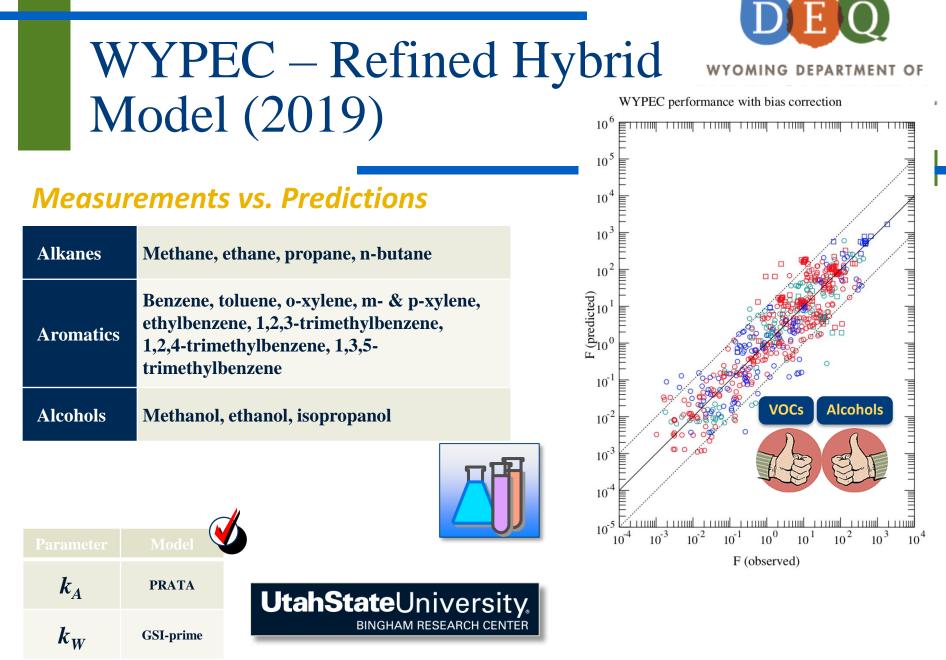
### **Best-Performing Models for Different Chemical Classes**



#### (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.

## Contacts



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