Professional, technical and management services – worldwide

Over 92,000 employees, projects in 150 Countries

Top Rankings in 20 technical and management categories (ENR)

2018 Engineering News Record Rankings (by size)

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<th>Rank</th>
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<td>Air Quality</td>
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<td>Chemical &amp; Soil Remediation</td>
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<td>2</td>
<td>Site Assessment/Compliance</td>
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<td>Chemical Plants</td>
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<td>Water Supply</td>
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James McDonald, AECOM Louisville KY

- 24 years working as an environmental consultant
- Involved with STAR from its inception in 2005.
- Expertise in air permitting, regulatory compliance, pollution control, and emission inventories
Goals of Presentation

- Share the Kinds of Things We Think About When Preparing an Environmental Acceptability Demonstration
  - Help you Demonstrate Impacts from TAC Emissions are Below Goals (i.e. to “pass”)
  - Minimize Effort Preparing EA Demonstrations
  - Maximize Operational Flexibility
  - Minimize Monitoring and Recordkeeping
Every Title V and FEDOOP has Completed One

How to Handle Changes – Cat 1 thru 4
- Required for new sources
- Required for operational changes resulting in emissions increase
- Required for material changes resulting in emissions increase or new air pollutant

Changes Not Requiring A Permit
- 6 Months to Submit Revised EA Demonstration
Regulation 5.0, Section 1.13.5, “Exempt Stationary Source”

- 25 tons per year of regulated air pollutant
- 5 tons per year of a HAP
- 12.5 tons per year of combined HAPs
Key Steps in EA Demo

- Define “Processes/Process Equipment”
- Estimate Emissions – typically maximum potential
  - Only Category 1 and 2 for existing sources (1 – 4 for new)
  - Controlled and Uncontrolled
- Gather Data for Modeling
  - Release parameters (stack height, flowrate, etc)
  - Topo Data
  - Met Data
- Run Model and Evaluate Results
- Potentially Repeat Above Steps With Alternate Assumptions
Processes/Process Equipment

- STAR Goals (Individual and Cumulative)

- Ability to Meet Individual Goal
  Depends on How Process Defined:
  - Use Permit as a Guide
  - Define as reasonably small as possible, particularly fugitives piping components
Processes/Process Equipment (Examples)

- **Process Line**
  - Define Fugitive Process Emissions associated with each production line or each process step

- **Process Building with Multiple Tiers/Floors**
  - Define Fugitive Processes by Floor – each floor has its own modeling parameters

- **Storage Spheres Piping Components**
  - If more than one sphere, define piping fugitive emissions by which storage vessel they serve
Estimated Emissions

- Make as Many Processes De Minimis as Possible
  - Material Substitution
  - Insignificant Activities
- Uncontrolled PTE will not become permit limit
- Controlled emission rates will become limits – PTE vs Actual
- Review of Estimation Methodology
  - Original Methodology may not be Representative or Appropriate
  - Alternative Methodology may be Better
  - Potentially Incorporate Control Device Downtime
Alternate Coating Formulation
- Reduces or eliminates TACs
  - De Minimis = <0.1% carcinogen; <1% non-carcinogen

Emergency Generator
- Sized so that it is an insignificant activity (<5 TPY)

Uncontrolled TAC emissions from a grinder are less than the de minimis lb/hr and lb/avg period threshold
- No permit limit, no monitoring

Worst case product assumed to be produce all year, but actually only produced part of the year
Air Dispersion Modeling Data

- Model Changes Can Affect Results Significantly
  - ISC versus AERMOD (District may no longer allow use of ISC)
  - Model Updates
  - Newer Met and Topo Data

- Input Parameters – New Buildings, Receptors, Stack Heights
Determining Cumulative Risk (multiple carcinogen TACs from multiple sources)

- Common Method: Add Worst Case Impact for each TAC (regardless of location)
- Better Method: QUASAR – Quantitative URS Approach to STAR Aggregate Risk
  - Only requires one extra modeling run for “risk”

Don’t Necessarily Need to Redo Tier 4 Model

- Combine Results from SCREEN3/TSCREEN with ISC/AERMOD
Still Not Meeting EA Goals

- Revisit:
  - Definition of Processes/Process Equipment
  - Emission Estimates
  - Release parameters (stack height, flowrate, etc)
Other Insights

- EHS/Environmental Manager Should Have Awareness of TACs/Process That Have Biggest Contribution to Risk Impact
- Beware of Emissions from Upsets
- Review Changes to Conditions when Permit Issued
Questions?

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