Global EH&S Meeting

“Environmental Permitting Strategies”

Presented by

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Overview

- Strategic Thinking Defined
- “Strategic” vs. “Tactical” Permitting
- Regulatory Complexity
  - US Air Permit
  - Casa Grande Example
- Managing Social Responsibility Requirements
- The “Must Do’s” to Permit Strategically
- Breakout Sessions
  - Air Permit Options (Arizona)
  - Waste Management Options (Colorado)

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Strategic Thinking Defined

Strategic thinking (in business) is defined as…

"the generation and application of unique business insights and opportunities intended to create competitive advantage for a firm or organization. It can be done individually, as well as collaboratively among key people who can positively alter an organization's future"

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Strategic vs. Tactical Permitting

Strategic (3 to 5 yrs.)	Example	Tactical (Now to 2 yrs.)	Example
Allows for expansion	Future production lines included in permit	Allows for quick permit processing	Only includes equipment to meet immediate needs
Open Communications	Agency informed of future plans	Restrained Communications	Agency only informed on immediate needs
Growth Focused	Permit tied to strategic business plan	Schedule Focused	Permit tied to production schedule(s)
Flexible Requirements	Creative and open permit conditions and language	Specific Requirements	Tried and proven permit conditions and language
Maximum Operational Flexibility	Allows for equipment relocation with notice letter	Constrained Operational Flexibility	Application process needed to relocate equipment
Future Pollution Abatement Technologies	Utilizes unproven pollution control technologies	Known Pollution Abatement Technologies	Utilizes traditional pollution controls technologies
Broad Applicability	Includes property and contracts not yet acquired	Limited Applicability	Includes acquired property and contracted work
Major Changes Expected	Allows for easy changes in equipment and processes	Minimal Changes Expected	Contains discrete list of equipment and processes
Marketable Permitting	Plans for banking and trading of pollution credits	Managed Costs Permitting	Minimizes the need for emissions offsets

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Regulatory Complexity (US Air Permit Example)

True Minor Source

Actual emissions <50% of major source thresholds
< 50 tpy criteria pollutants
< 12.5 tpy aggregate HAPs
< 5 tpy single HAP

Basic Requirements
- State or local minor source conditions
- Permit application and fees

Benefits / Impacts
- No public notice required
- May not require modeling of emissions
- Shortest application processing timeframes for **new** and **modified sources**

Synthetic Minor Source

Accept emission limits below major source thresholds
< 100 tpy criteria pollutants
< 25 tpy aggregate HAPs
< 10 tpy single HAP

Basic Requirements
- Federally enforceable emission limits
- State or local minor source conditions
- May require additional monitoring and emissions modeling

Benefits / Impacts
- May not require public notice
- Reduced compliance burden from T-V
- Reduced application processing times for **modified sources**

Title V Source

Emissions at or above major source thresholds
≥ 100 tpy criteria pollutants
≥ 25 tpy aggregate HAPs
≥ 10 tpy single HAP

Basic Requirements
- Federally enforceable permit conditions
- Increased compliance burden
- Public and EPA comment on draft permit
- Increased monitoring, recordkeeping and reporting

Benefits / Impacts
- Increased compliance costs & risks
- Larger penalties for non-compliance
- Duplicates state/local permitting programs

PSD Source

(attainment pollutants only)

Criteria Pollutant Emissions above PSD thresholds
≥ 100 tpy if one of (28) listed sources or
≥ 250 tpy for non-listed sources

Basic Requirements
- Model impacts to Class I & II areas
- Evaluate increment consumption
- 18 to 36 month application processing
- Public and EPA comment on draft permit
- BACT/LAER required

Benefits / Impacts
- Most costly permitting category
- Modifications are difficult to permit
- Minimal Flexibility
- Permit listed in SIP

Impact to business operations

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The Casa Grande "Example"

- **Pre-Application Permitting Challenges**
  - VOC Limit of 300 tpy (PSD Major)
  - Actual Emissions < 180 tpy
  - "Dip Room" VOC Capture System Old (room vs. localized)
  - Current VOC capture system creating H&S challenges
  - Plant projected to double is size
  - Mfg. processes not optimized (i.e. cycle time high and not lean)
  - BACT options not clear
  - Controlling large volume untreated airstream extremely costly

- **Proposed Improvements to Permit**
  - Reduce VOC limit to 220 tpy
  - Redesign VOC Capture and Control System
  - Eliminate H&S challenges
  - Accommodate plant growth while decreasing VOC limit
  - Reduce mfg. cycle times and deploy lean improvements
  - BACT much easier to define and deploy
  - Reduce volume or untreated airstream by converting to localized capture approach
  - Reduce O&M costs by increasing VOC concentration in untreated airstream
  - No need for VOC concentrator and reduced number of RTOs needed

Bottom Line – Doubled size of the plant and cut emissions in half

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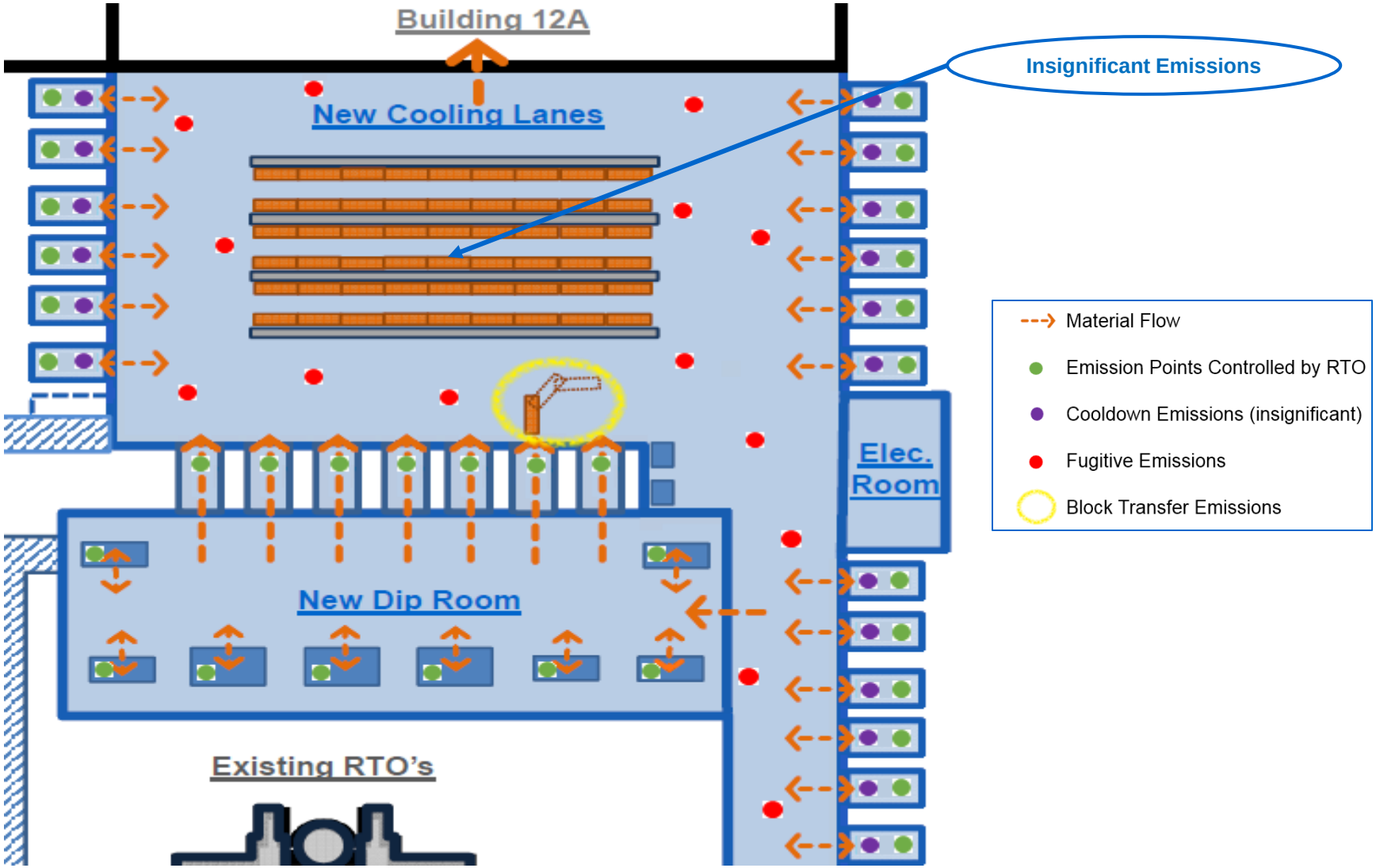
Casa Grande - New Dip Room Design



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Managing Social Responsibility with Permitting (Thinking Long Term)

- **Care for Stakeholders**
- **Ethical Functioning**
- **Respect for Worker's Rights and Welfare**
- **Respect for Human Rights**
- **Respect for Environment**
- **Social and Inclusive Development**

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Must Do's to Permit Strategically

- **Plan Strategically**
- **Think Proactively**
- **Collaboratively Solve Problems**
- **Act in a Timely Manner**

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Breakout Sessions (Optional)

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Team 1 – Air Permit for Plant in Arizona

An aerospace manufacturing plant will be located in an AZ county that is in attainment of all NAAQS. <u>Uncontrolled</u> emissions and <u>Percent Contributions by Process</u> are estimated as follows;

- VOC **280 tpy** (coatings - **50%** , surface prep - **20%**, wipe cleaning - **30%**)
- NOx **110 tpy** (boilers - **35%**, ovens - **35%**, autoclaves – **25%** and space heating - **5%**)
- PM **180 tpy** (abrasive blasting – **50%**, sanding – **40%** and cutting operations – **10%**)
- Lead **1.2 tpy** (foundry molds for die casting, drop hammer and hydraulic presses – **100%**)
- GHGs **95 tpy** (various combustion sources – **100%**)
- MEK (HAP) **12 tpy** (wipe cleaning - **50%** and surface preparation operations – **50%**)

The Following Air Pollution Controls and Control Efficiencies are Being Considered for the Plant;

- VOC (RTO for coatings - **98%**, squeeze bottles for surface prep - **30%**, non-VOC solvent for wipe cleaning **100%**)
- NOx (Low NOx Burners – LNB for boilers & autoclaves - **28%**)
- PM (Baghouses for abrasive blasting and sanding - **+99%**)
- Lead (HEPA filters – **+99.99%)**
- GHG (**none**)
- MEK (non-VOC solvent for wipe cleaning **100%**)

<u>Answer the Following Questions</u>

1. If maximum controls are applied to the plant, What will the controlled emissions be?
2. What air permitting category will apply to the plant if emissions are controlled at the maximum level?
3. **What permitting scenario would be considered "strategic"? (choose a or b), Why?**
   a. Apply the necessary controls to achieve the most favorable permitting category (i.e. **true minor, synthetic minor, Title V or PSD**), or;
   b. Apply the minimal controls to lower capital and short term operating costs for the plant knowing that long term operating costs and future emissions fees are expected to be significantly higher.

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Team 2 – Waste Management for Plant in Colorado

An aerospace components manufacturing plant will be located near the city of Boulder, Colorado. The following waste generation, reuse and recycle values are estimated for the new plant.

- Hazardous Waste 18 tpy/3,000 lbs./month (subject to incineration **costs at $40/ton**)
- Reused/Recycled Waste 8 tpy/1,333 lbs./month (**profit of $5/ton**)

Waste Management <u>Options</u> for the New Plant

1. **Reduce** the amount of **hazardous waste generated** and **increase** the amount of **hazardous waste reused/recycled** to maintain a level of **Conditionally Exempt Small Quantity Generator** (i.e. **≤ 220 lbs./month**) and stay at that level with planned future growth of the plant. The **current profit** of **recycling** will now become a **<u>net costs</u>** (i.e. $10/ton) due to **changes in waste characteristics, modifications of the waste generating processes and additional costs for acquiring and operating equipment to accomplish on-site recycling**.
2. **Reduce** the amount of **hazardous waste generated** and **increase** the amount of **hazardous waste reused/recycled** to maintain a level of **Small Quantity Generator** (i.e. **> 220 lbs./month < 2,200 lbs./month**) knowing that you can stay at that level with planned future growth and **no additional waste management costs for the plant**.
3. **Do not change** the amount of hazardous waste planned for **reuse/recycling** and retain a level of **Large Quantity Generator** (i.e. **> 2,200 lbs./month**). This will support unrestricted growth and operational flexibility (from a waste generation perspective) but it **will result in increased liability for the company and significantly higher operating cost and taxes for the plant**.

<u>Answer the Following Questions</u>

1. How much additional HW would need to be reduced, reused and/or recycled to meet the objectives in option #1(%)?
2. How much additional HW waste would need to be reduced, reused and/or recycled to meet the objectives in option #2 (%)?
3. **What waste management option would be considered "strategic"? (choose a, b or c), Why?**
   - **a. Option #1** even though you would need to purchase and operate expensive on-site recycling equipment or;
   - **b. Option #2** given slightly higher taxes but no additional waste management costs for the plant, or;
   - **c. Option #3** given feedback from operations that they need maximum operating flexibility.

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Questions?

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