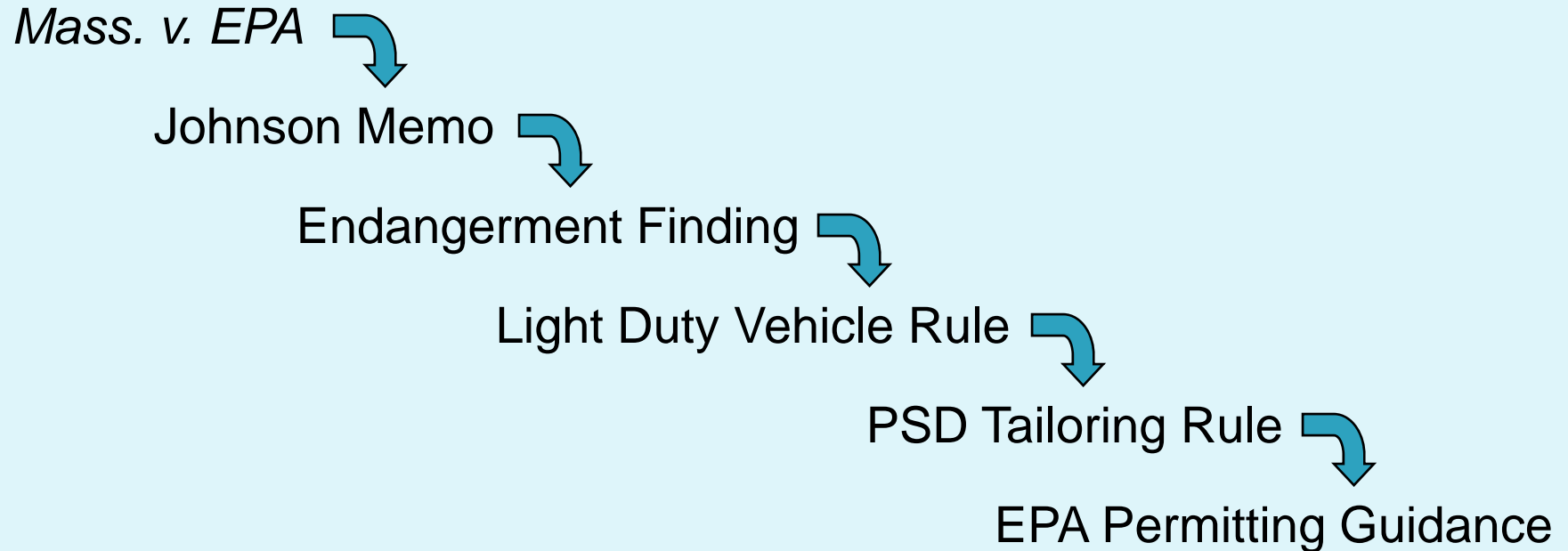


Effective PSD Permitting Strategies for GHG Emissions

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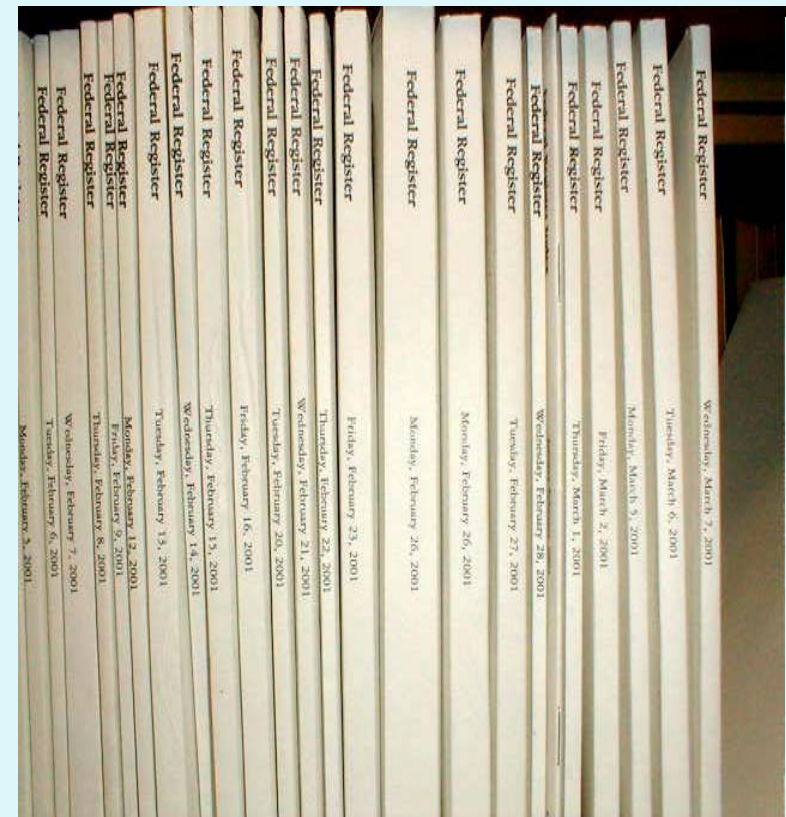
How Did We Get Here?



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- Tailoring Rule in effect since January 2, 2011
 - Almost everyone agrees the CAA is the wrong tool
 - GHG permitting remains a legal battleground
 - State challenges
 - The Battle of Texas

Tailoring Rule Applicability

- “Anyway” projects are those which trigger PSD review for criteria pollutants
 - 75,000 tpy CO₂e
- Non-anyway sources trigger PSD review solely for GHG
 - 100,000 tpy CO₂e
- NAAQS and Non-attainment New Source Review do not apply
- New source thresholds and modification thresholds are the same for any project



Guiding Principles

- EPA's position is that PSD and BACT review processes should remain largely the same...
 - Actual-to-projected actual applicability test
 - Netting analysis
 - Top-Down BACT analysis
- ...but! Several typical PSD elements do not apply or remain unresolved
 - PSD increment modeling not required (No NAAQS)
 - Lack of available permitting decisions or RBLC data
 - Lack of NSPS floor for control selection
 - Very limited options for add-on control strategies
 - Consideration of secondary emissions when selecting BACT

Emissions Estimation and Netting Analysis



- EPA will allow historical CO₂e to be calculated from past operating data
 - Be sure to use the same GWP basis for past and future emissions
- Emission reductions can only be netted from on-site sources
- Demand growth exclusion may still be applied
 - “Reasonable Possibility” under *New York v. EPA* requires MR&R if the net increase > 50% of PSD applicability
 - Document! Document! Estimates must be defensible.

BACT Essentials

- BACT must be an *emissions limitation*
 - Simple work practice standards are unlikely to satisfy BACT
- Add-on control options are very limited
 - EPA’s position (through guidance) is that CCS **must** be explored in any **complete** BACT analysis
 - This is in contrast to their position that CCS will not be a feasible option for the vast majority of projects
- Inherently Lower-Polluting Processes will be the focus of many BACT determinations
- Industry-specific guidance tends to blur the line on “redefining the source”
- At what cost is a project economically infeasible?

CCS Considerations

Evaluate CCS in two categories:

- On-Site Sequestration projects
 - Highly dependent upon local geography
 - Study nearby O&G fields for EOR potential and capacity
 - Examine the potential of immediate geologic formations
- Carbon Capture and Transport projects
 - Third-party pipelines would seem to be the future for CCS, however serious legal issues arise
 - o Permits have never mandated contracts with a specific third-party
 - o Pipelines would serve as utilities, yet are not regulated by PSC
 - o Permit compliance becomes dependent upon a single third party

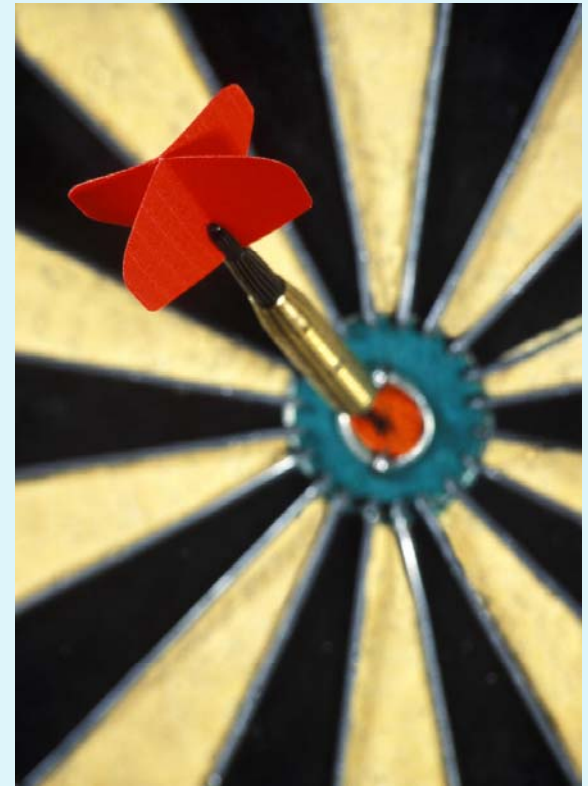
Energy Efficiency

- Inherently Lower Polluting Process concept inevitably leads to energy efficiency
- Clash of paradigms:
 - *Industry*: Don't you think we are as efficient as possible?
 - *EPA*: BACT is not based on an ROI, it has a net cost.
- Fuel selection may be the most effective option for many projects, favoring natural gas
- Electric efficiency for secondary emissions
- Benchmark process design efficiency
 - Claim credit when proposing highly efficient process designs
 - Identify energy integration efforts



Effectiveness

- Most traditional pollutant control strategies conflict with the energy efficiency goal
 - Controls have energy penalties, from LNBS to wet scrubbers
 - Consider energy penalty effects when benchmarking against top-performing similar sources; do they have controls?
- EPA's position is that effectiveness should not be taken down to the light bulb level, efforts should be focused on process-level equipment



Questions?

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