

Fishbeck, Thompson, Carr & Huber, Inc.

Successful Minor Source Permitting Strategy for Addition of Alternative Fuels to a Utility Boiler

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Objective(s)

- Describe use of the actual-to-projected-actual (A2PA) approach to avoid Major NSR for a fuel switch.
- Define “excluded emissions” in the context of A2PA permitting.
- Identify the key regulatory issues associated with “excluded emissions.”
- Describe a specific Case Study – The TDF Fractionation Process



Calculating a Significant Emission Increase

- Before A2PA
 - $\text{PTE (after change) - Baseline Actual} = \text{Change}$
- After A2PA
 - $(\text{Projected Actual} - \text{Excluded}) - \text{Baseline Actual} = \text{Change}$
- A2PA modeled after “WEPCO” Rule which allowed electric utilities to exclude increases in demand growth from PTE (after change)



“Excluded Emissions” Defined

- An amount subtracted from projected actual emissions that:
 - Could have been accommodated during the baseline period; and
 - Is not related to the change.



“Excluded Emissions” Key Issues

- “That portion of the unit’s emissions following the project”
 - Only emissions resulting from production greater than baseline?
 - An opportunity to double count baseline emissions?
- “Could have been accommodated”
 - Actually were accommodated?

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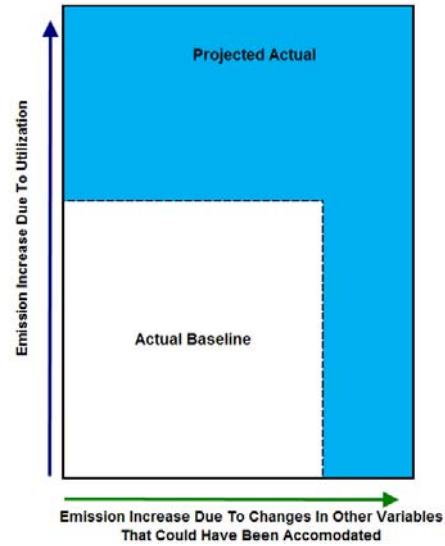
Approaches to Excluded Emissions

- Most common approach among Permitting Authorities is to ignore excluded.
 - Believed to simplify recordkeeping following change.

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Illustrative Examples

- Ignore excluded emissions



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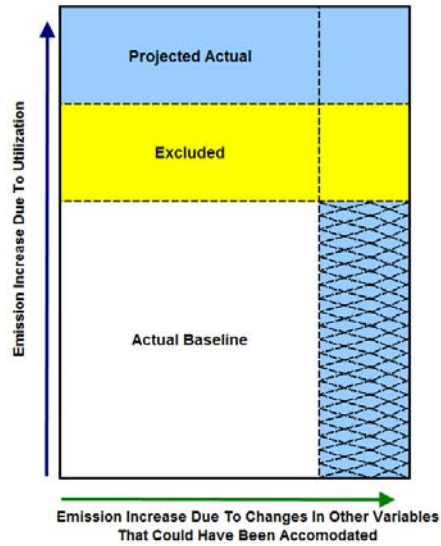
Approaches to Excluded Emissions

- Exclude emissions only if projected utilization is greater than baseline.
 - Agency concerned that excluded emissions “replaced” the baseline.

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Illustrative Examples

- Exclude only utilization increase



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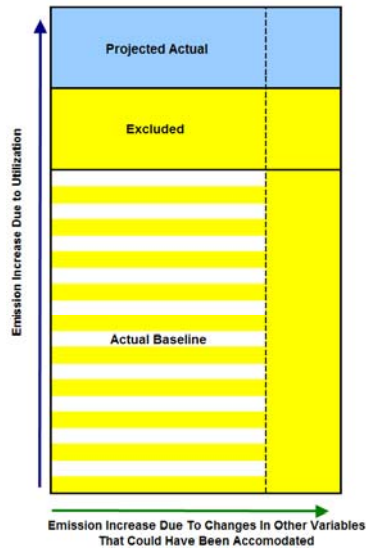
Other Opinions on Excluded

- All post-project emissions are excludable regardless as long as they could have been accommodated and are not related to the change (*Air Pollution Consultant, 2008*).
 - Has the effect of double counting the baseline emissions.

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Illustrative Examples

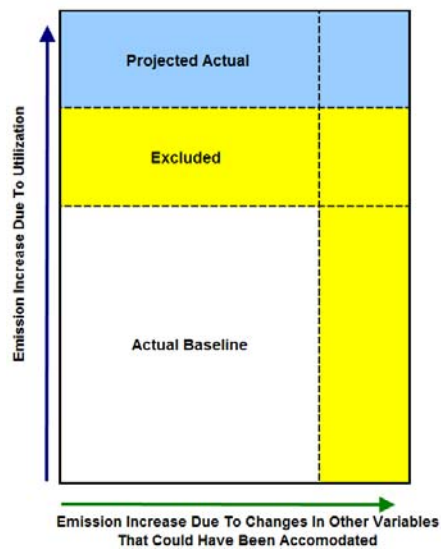
- Exclude all unrelated, post-project emissions that could have been accommodated



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Illustrative Examples

- Author's opinion



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Case Study – TDF Fractionation Process

- Existing Coal/Pet Coke Utility Boiler
 - Rated at 750 mmBTU/Hr. Heat Input
 - Hotside ESP followed by Wet SO₂ Scrubber

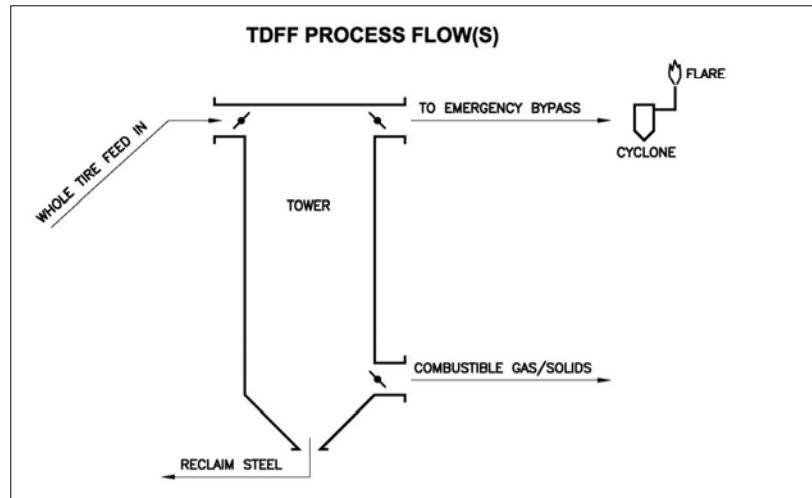
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Case Study – TDF Fractionation Process

- New 120 Foot TDF Fractionation Tower
 - Processes up to 12,000 lb/hr of Whole Tires
 - Contributes up to 150 mmBTU/hr to Boiler
 - Gasified fuel input
 - Carbon fuel input with existing pulverized coal/pet coke
 - Steel from tires recovered and recycled
 - Add emergency bypass with PM control and flare

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TDFP Process Schematic



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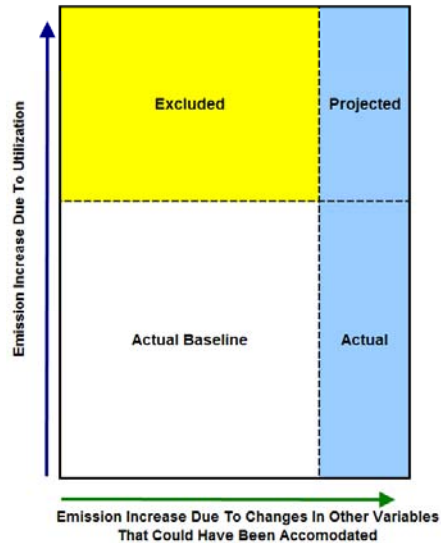
Case Study – TDF Fractionation Process

- Why choose A2PA permitting strategy?
 - No Scalable Emission Test Data for New TDFP Process for criteria pollutants or HAPs.
 - Expectation is NO_x or CO will limit significant increase, but don't know which one.
 - Since emission increases are projected, they are not set as enforceable emission limits.
 - After initial testing, client has the ability to adjust TDFP usage to maintain all pollutants below significant.

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A2PA Methodology Used

- Exclude only utilization increase



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A2PA Summary

- Step 1 – Calculate Baseline
 - 5 year look back for “steam electric generating units”
 - All others 10 years
 - Annual emission inventory reports
 - Check for consistency with:
 - Acid Rain/CAIR Reports
 - Stack Tests/CEMS Data

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A2PA Summary

- Step 2 – Calculate Excludable
 - Projected Gross Generation looking 5 years out from project
 - Must be able to document Gross Generation Projections
 - Filings with regulatory agencies (e.g., Public Service Commission)

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A2PA Summary

- Step 3 – Calculate PTE for New Emission Sources
 - Flare
 - Added cyclone to remove carbon solids
 - Accepted limit on hours of operation
 - Quantify additional fugitive emissions
 - Bringing tires onto site
 - Removal of reclaimed steel for recycling

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A2PA Summary

- Step 4 – Calculate Projected Actual Emissions
 - Projected Emissions = Baseline + Excluded + (90% Significant – New Equipment PTE)
 - Since No Scalable Test Data, Tire feed rate after modification will be adjusted based on test data to maintain all actual emission increases below projected numbers.

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A2PA Summary

- Step 5 – Develop record keeping system to track emissions and verify compliance

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Thank You!

- Questions/Answers
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