



Case Study of Innovative Permitting

NACAA Permitting Workshop

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3M Innovative Flexible Permits

- 3M St. Paul Main – First innovative flexible permit issued in 1993
- Current Flexible Permits
 - *3M Brownwood (Texas)*
 - *VOC Plant-wide Applicability Limit Permit*
 - *3M Nevada (Missouri)*
 - *VOC Plant-wide Applicability Limit Permit*
 - *3M Menominee (Wisconsin)*
 - *PSD Synthetic Minor Source Permit (VOCs)*



Flexible Permit Basics

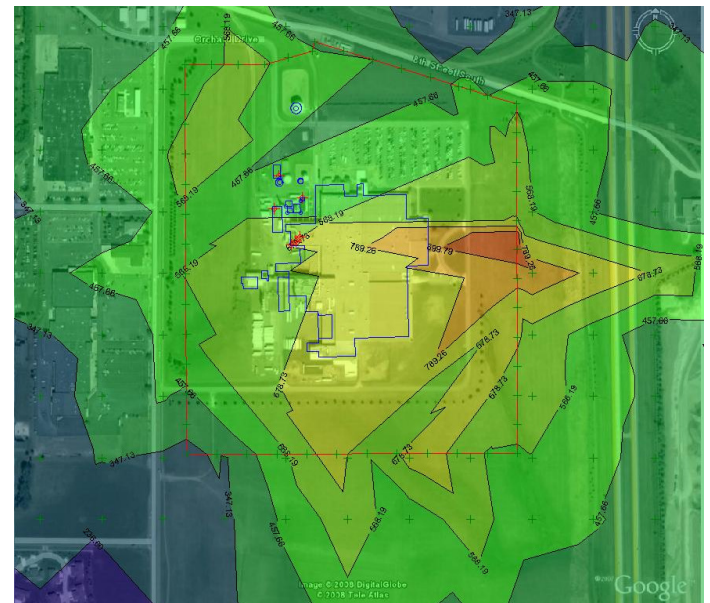


- Title V Permit with additional provisions to allow for certain pre-approved changes in return for “beyond compliance” commitments
- Prescriptive permit requirements address all applicable air regulations
- Allow for pre-approved changes to be completed without traditional construction permit authorization and timeline

Flexible Permit Basics (Continued)

Agency Notifications

- Initial construction start-up notification to agency prior to start of construction
- Start-up notification to agency required upon equipment start-up documenting:
 - *Method of Compliance for all applicable prescriptive permit requirements*
 - *Submittal of additional compliance documentation (e.g. air dispersion modeling)*



Benefits of Flexible Permits

- Provides permittee with incentive to reduce environmental footprint
- Allows permittee to rapidly react to business needs
- Reduced administrative burden for agency and permittee



Case Study – 3M Menomonie



- Diverse facility manufacturing products for >15 different 3M Divisions
- Initial flexible permit issued in 2004 and renewed in 2008
 - PSD Synthetic Minor Source for VOCs
 - Allows for pre-approved for pre-approved changes for five different types of processes:
 1. *Spray/Paint Booth Coating*
 2. *Ceramic Fiber Making*
 3. *Chromium Plating*
 4. *R&D/Pilot/Development Projects*
 5. *Web Coating*

Case Study – 3M Menomonie (Continued)

- Flexible Permit includes provisions for demonstrating compliance with:
 - 40 CFR 63, Subpart JJJJ – Paper and Other Web Coating
 - 40 CFR 63, Subpart N - Chromium Emissions From Hard and Decorative Electroplating and Anodizing Tanks
 - 40 CFR 60, Subpart RR – Pressure Sensitive Tape and Labels
 - NR 445 – Control of Hazardous Pollutants (State Air Toxics)
 - NAAQS and Ambient Air Increment modeling for PM, NO_x, and SO₂



Case Study – 3M Menomonie

Benefits

- 16 flexibility projects implemented since 2005
- Significant time and money for 3M and WDNR
- Environmentally beneficial projects and partnerships



Case Study – 3M Menomonie

- Example of Title V Permit language additions required for installation of several web coating lines



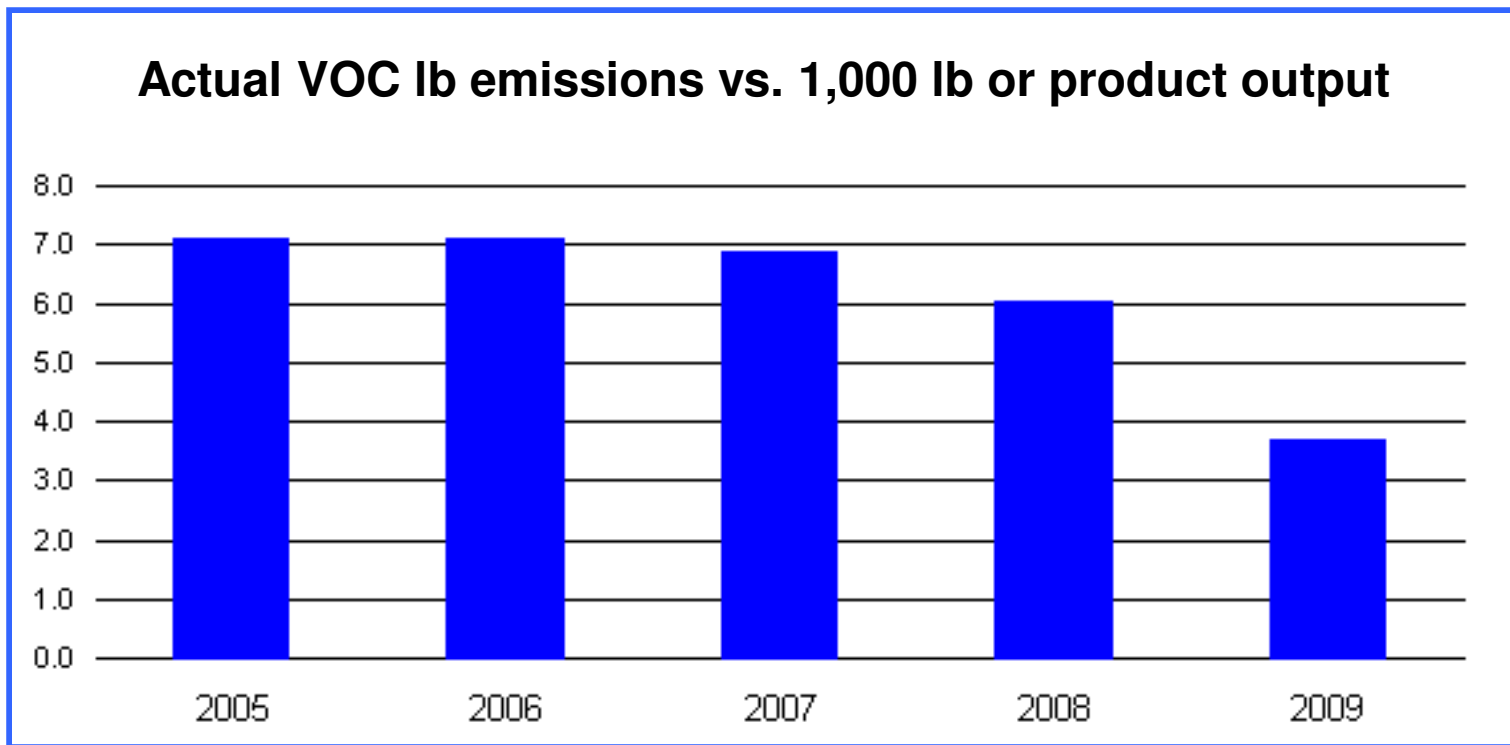
I. F. Process I2 — E-Beam
 Process I6 — Hot Melt Coater (PC&RP Division)
 Process I7 — Elastic Coating 1 (PC&RP Division)
 Process I8 — Elastic Coating 2 (PC&RP Division)
 Process P06, S06, S36; P10, S10, S20; P11, S11, S21; P12, S12; P13, S13, S23; P21, S50, S51, S52, S53, S204, S211, S212, S213; P24, S219, S226, S227, S228; P25, S230, S237, S238, S239; P26, S241, S249, S250 — MRC Resin Coating Lines-Last Modified 2000, Installed 2003, 2004, 2006, TBD
 Process P07, Stack(s) S07, S22, S24, S49 — Tape Coating-Installed 1983
 Process P20, Stack(s) S31, S32, S33 — Gamma Line-Installed 2004
 Process P23, Stack(s) S217 — GDL Line-Installed 2005
 Process I9, Stack(s) S154 — F1 Line Hot Melt Coater (PCD Division)

Pollutant	a. Emission Limitations	b. Compliance Demonstration	c. Reference Test Methods, Recordkeeping and Monitoring Requirements
Organic Hazardous Air Pollutant (OHAP) Emissions	<p>PCRFP Hook Line Extrusion Coating, and PCRFP Tape Line Hot Melt Coating lines, MRC Resin Coating Lines 1-6, the tape coating line, and the gamma line as of the effective date of this Title V operating permit. [40 CFR 63.3330(a) and s. 285.65(13), Wis. Stats.]</p> <p>(2) LIMIT: VOC emissions each month, from the collection of all web coating lines, to the level specified in (a) OR (b):</p> <p>(a) No more than 4 percent of the mass of coating materials applied for each month; OR</p> <p>(b) No more than 20 percent of the mass of coating solids applied for each month [40 CFR 63.3320(b) and s. 285.65(13), Wis. Stats.]</p> <p>(3) The total monthly VOC usage for the MRC Resin Coating Lines P10, P11, P12, and P13 shall not exceed an average of 6,650 pounds</p>	<p>web coating lines subject to 40 CFR 63 subpart JJJJ MACT standard [s. 285.65(13), Wis. Stats.]</p> <p>(2) "As-Purchased" Compliant Coating Materials. DEMONSTRATE: that each coating material applied during the month contains no more than 0.04 kg VOC per kg of coating material (0.04 lb VOC per lb of coating material), OR no more than 0.2 kg VOC per kg coating solids (0.2 lb VOC per lb coating solids) HOW: by determining the VOC AND/OR solids content of each coating material applied, on an as-purchased basis, according to I.F.1.b(4) [40 CFR 63.3370(c)(5)(i) and s. 285.65(13), Wis. Stats.]</p> <p>(3) "As-Applied" Compliant Coating Materials. DEMONSTRATE: that the monthly average VOC content of all as-applied coating materials is no more than 0.04 kg VOC per kg of coating material (0.04 lb VOC per lb of coating material), OR no more than 0.2 kg VOC per kg coating solids (0.2 lb VOC per lb coating solids), as determined according to I.F.1.b(3)(a) OR (b), as applicable [40 CFR 63.3370(c)(5)(ii) and s. 285.65(13), Wis. Stats.]</p> <p>(a) DEMONSTRATE: $H_T \leq 0.04$, as calculated according to Equation 4 of 40 CFR 63.3370(c)(3) where H_T = Monthly average, as-applied, organic HAP content of all coating materials applied, expressed as kg organic HAP per kg of coating material applied, kg/kg ((lb organic HAP/lb coating</p>	<p>HOW:</p> <ul style="list-style-type: none"> by direct measurement, OR by calculation based on the amount of each product made by each web coating line and the corresponding coating formulation of those products, plus any materials added (e.g. solvent thinning of a coating), OR by other method, as approved by WDNR <p>(2) DETERMINE AND RECORD: "as-purchased" volatile organic content AND coating solids content of each coating material applied, as applicable and consistent with the compliance demonstration elected at I.F.1.b. The term "as-purchased" is intended to apply to any single material or combination of materials [for example, the entire coating, as applied at the web] for which volatile organic content AND/OR coating solids content has been determined by one of the following methods</p> <ul style="list-style-type: none"> by testing using EPA Method 24 [40 CFR part 60, Appendix A], according to 40 CFR 63.3360(d)(1), OR by formulation data, according to 40 CFR 63.3360(d)(2), OR by an alternative test method, approved by the Administrator at EPA in accordance with 40 CFR 63.7(f) <p>(3) As is provided by 40 CFR 63.3400(b), the initial notification required under 40 CFR 63.9(b) is deemed to have been satisfied by the application for this Title V permit. [40 CFR 63.3400(b) and s. 285.65(13), Wis.</p>



Case Study – 3M Menomonie

VOC Emission Reductions



Case Study – 3M Menomonie



- Wildlife Habitat Council Certification
 - *On the 540-acre 3M Menomonie site, 110 acres are conserved for wildlife.*
- Partnerships with University of Wisconsin Biology Department and the Wisconsin Department of Natural Resources
- Involvement in local middle school Earth Day projects.
- Students, employee volunteers, and townspeople have placed nesting boxes in various locales and are monitoring the water quality at a local creek watershed.

Future Need for Flexible Permitting

- Reductions in both industry and agency resources will require more innovative permitting approaches
- Economic uncertainties impact on the speed of business
 - Example: With recent economic downturn 3M's Business timelines are shrinking and EHS therefore given shorter notice prior to desired construction date (from 95 days to 50 days)
- Great opportunity to promote voluntary environmental programs

