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**EMACT:**

**Advanced Calculation Methods Review and  
Capabilities for Factory-Wide, Period-Based  
Emissions Calculations**

**Greenfield Environmental, Inc.**

Bradly Carpenter - Accounts Executive

October 23, 2003

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# Agenda for Meeting 7/23/03

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- **Examples of Calculation Flexibility** - 15 minutes
- **Review of EMACT Factory Calculation Capabilities** - 30 minutes
  - Step by Step Demonstration
    - ◆ Raw Material Import File Review
    - ◆ Handling of Assigned Throughputs
    - ◆ Batchmaking Review
    - ◆ Continuous/Miscellaneous Review
    - ◆ Facility-Period Specific Emission Factor Review and Report Generation
- **Review of EMACT 5.0 Product Life Cycle Roadmap** - 15 minutes
  - Milestone Accomplishments
  - Planned Release-Build Enhancements
  - Planned 6.0 High-Level Development Plans

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# EMACT Advanced Flexible Calculations: Sources

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- **Greenfield Environmental provides calculation options based on one of two available methods:**
  - Mathematical derivation
  - Statistical model creation
- **Mathematical derivations stem from various work published in “Environmental Protection Magazine” (or equivalent) as alternative calculation methods.**
  - These methods typically address emissions estimation from the perspective of applied calculus rather than finite summation
- **Statistical models reflect results of polynomial regression with > 90% “R-squared” goodness of fit.**
  - Models are currently bound by physical limits
  - Conditions outside of model boundaries default to the EPA method

# Summary Results: Flexible Calculation Methods

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(Units in Pounds)

Methods	Pressure (10 → 1 atm)	Gas Expansion (24-32 C)	Purge Gas (350 CFM)	Total
EPA – CTG	2.437	0.0179	42.9277	45.382
EMACT - Advanced	1.0886	0.0094	16.350	17.448

Sample batch of three (3) solvents (toluene, xylene, 3-methyl, 5-pentanone) and two (2) solids additions.

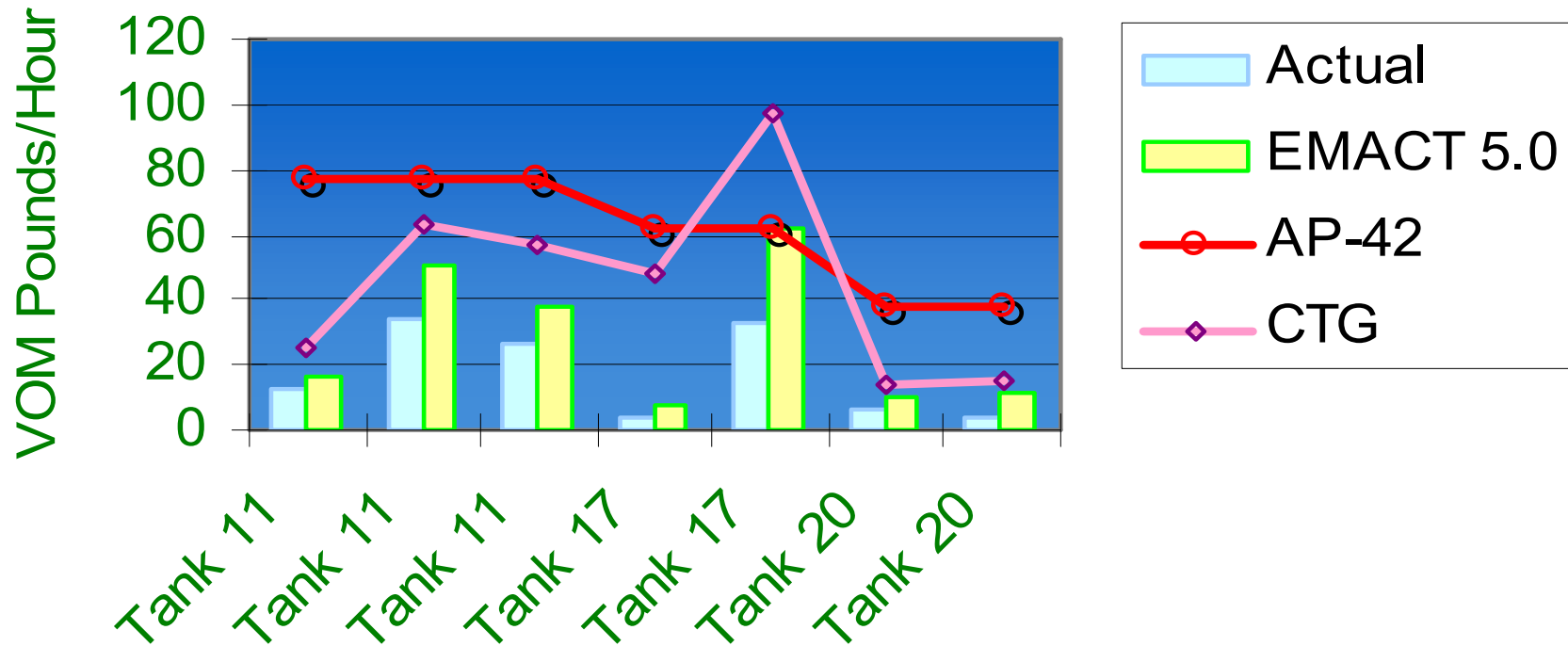
Batch experiences depressurization, heating, and active venting (during solids addition) recipe steps.

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# Blind Model Confirmation Runs, January 2003

## EMACT Outperforms Other Methods!

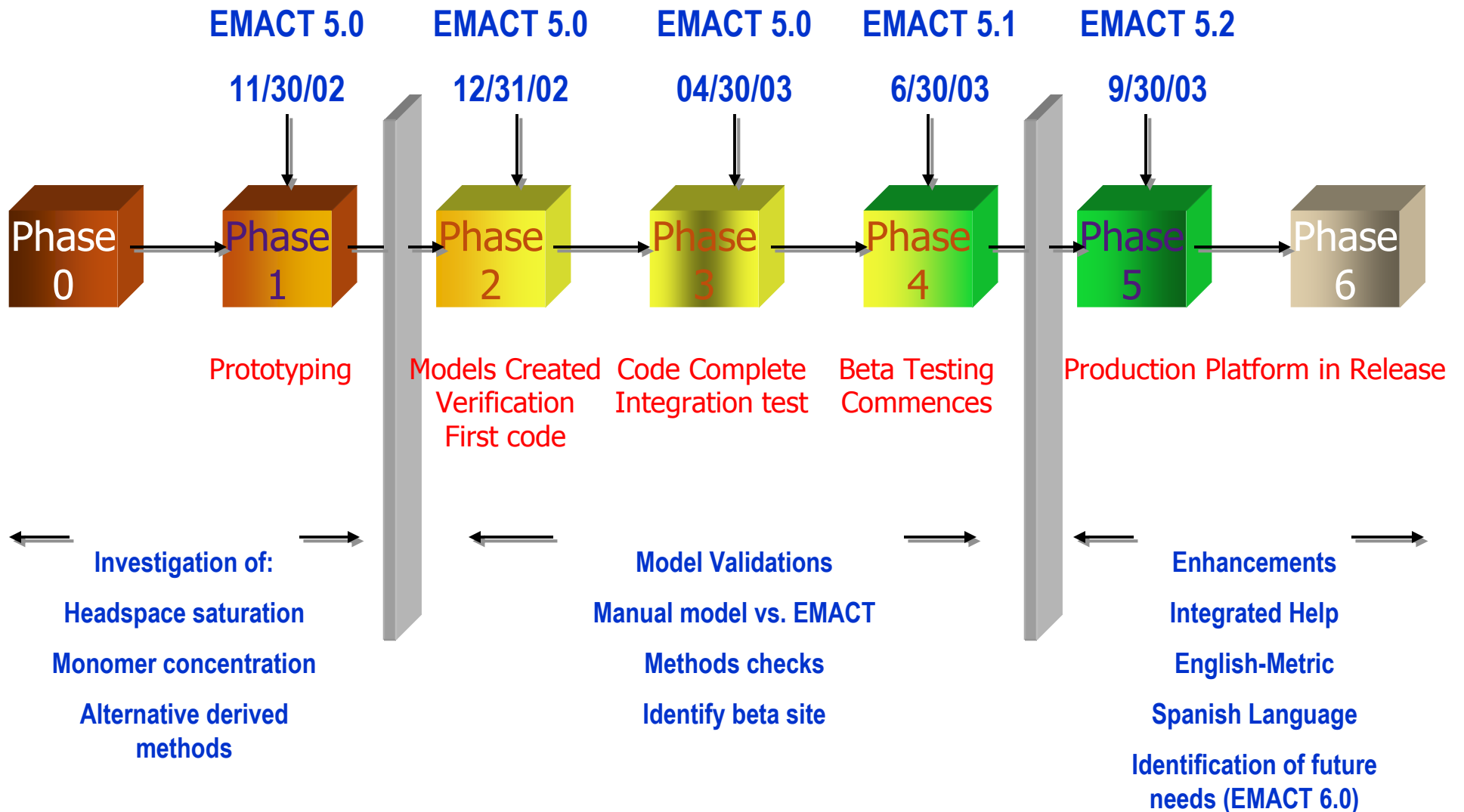


Results demonstrate impact of Headspace Exchange Rate modeling versus simple vent speed application

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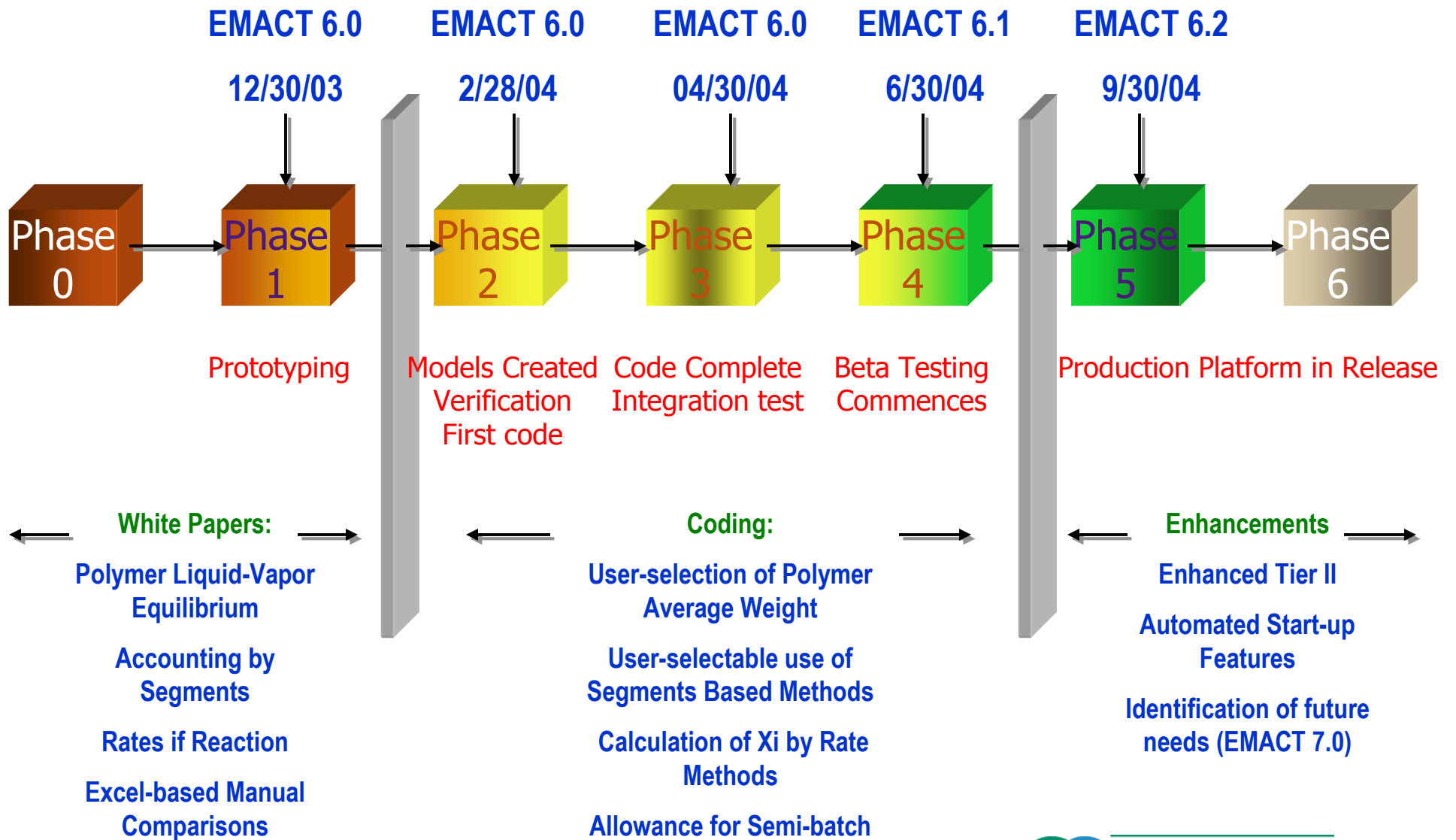
# EMACT 5.0 Product Development Cycle



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# EMACT 6.0 Technology Development Plan



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# Summary

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- **EMACT provides the highest accuracy VOM emission estimation techniques available for**
  - All Batches
  - Any Specified Period
  - Your Facility
- **EMACT will continue to advance as an estimation tool**
  - Product Development Life Cycle strategies and controls
- **EMACT alone meets the needs of Corporate Air Teams with regard to accuracy, robustness, and capacity for technical growth**