



Coking.com

SAFETY SEMINAR

Strategic Chemistry®



RTI Presenters

Cody Nath – Director of Business Development

Chem Engineer; Coker, Crude, HDS Process Engineer; Products Planning

Bob Beach – Operations Manager

Mech Engineer; Maint Supervisor, Section Supervisor, FCC T/A Supervisor
w/ ExMo; 30+ years process experience

Sean Sears – Sr. R&D Chemist

Senior R&D Chemist. B.S. Biochemistry. 13 years of formulation experience. 3
patents for industrial cleaning in refineries and petrochemical plants



Strategic Chemistry

The timely use of chemistry and planning, engineered
to improve operating margins.



Presentation Agenda

- Introduction to Refined Technologies, Inc.
- Cleaning with Chemistry
- Applying Strategic Chemistry & Ops Planning
- Proven, Predictable Results



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Mission Statement



History of Our Business

- 25 yr history of degreasing metal surfaces
- Refined Technologies incorporated in 2001
- US Patents received in 2005, Canadian pending

Clients include: ExxonMobil, Valero, BP, Sunoco, Imperial Oil, Frontier, Motiva, Hunt, Citgo, Lyondell, Petro-Canada, Placid, FHR, Suncor, Husky, and others.

Turnaround applications at over 30 North American refineries.

In-Situ cleaning at over 25 refineries.

Coker Fractionator Applications at 13 Refineries



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T/A's & Vessel Entry:

- Reduced T/A downtime by 24-48+ hours
- Fractionators cleaned in 12 hours or less
- Significant reduction in waste effluent
- Written plans for fast emergency cleaning / vessel entry

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Improved Operating Performance/ Reduced Maintenance Expense:

- Avoid shutdowns by choosing a Strategic Chemistry alternative
- On-run cleaning opportunities include:
 - spray headers, HXs, Fin-Fans, pumps, valves

There is no safer or faster way to clean process equipment.



Cleaning with Chemistry

- Vaporganic® Process
- Solvency Strength – Kauri-Butanol Value
- Product Facts & Compatibility
- Chemically deactivated pyrophorics
- Cleaning Scope



Vaporganic® Process

Advantages of the Vaporganic Process:

1. Small amount of chemical cleans large area.
2. Entire surface area cleaned.
3. Higher temperature cleaning is more efficient.
4. Achieve gas free results through high level of cleanliness.
5. You must CLEAN before you can DEACTIVATE.



Cleaning with Chemistry

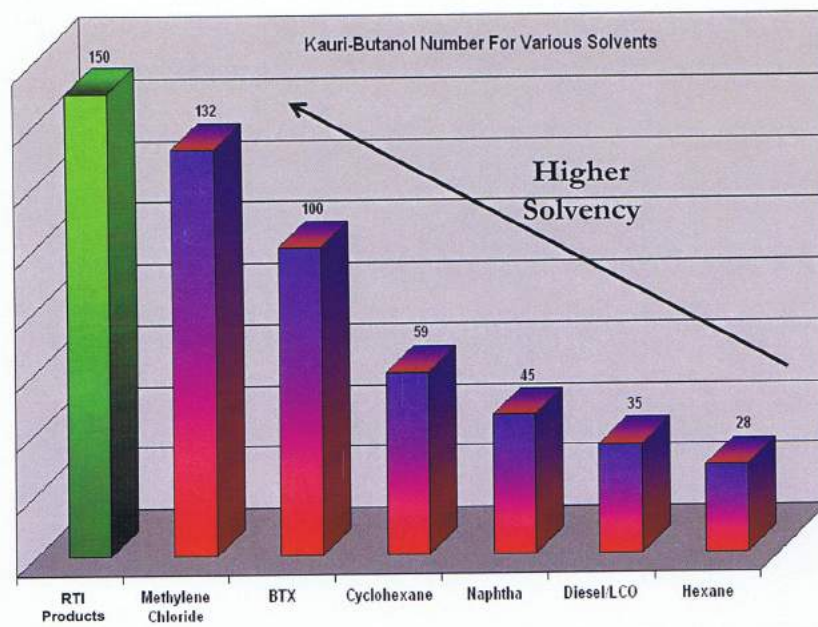
Kauri-Butanol (KB) value:

a measure of the solvency of a hydrocarbon; the higher the Kauri-Butanol value, the greater the general solvent power of the hydrocarbon.

ASTM Method D1133-90

KB Value determines SPEED for cleaning.

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Water-Based vs Vaporganic Chemistry



Trays from Coker





Patented Technology



Used to remove heavy oils, tar, and LEL for gaining permitted entry into towers, drums, exchangers, etc. Application completed in 12 hours or less. **Rinsed with water.** Patented.



Used as a supplement to QuikTurn for the treatment of pyrophoric material. Applied in a cascade, batch-rinse format. A colorimeter is used for end-point testing and assurance of complete oxidation.



Used for routine, in-place cleaning of heat exchangers, fin fans, pumps, feed filters, valves, etc. **Non-rinse.** Patented.

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Product Facts

QuikTurn and Super Q are:

- Hydrocarbon-based chemistry.
- Biodegradable and non-toxic.
- Carry a neutral pH.
- Fully compatible with wastewater treatment facilities.
- Non-corrosive to all metal surfaces.

RTI Products are safe yet extremely effective solvents.

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Field Application & Operations Planning



Operations Planning

- **Professional planning.**
Use planners who are intimately familiar with coking and process technology.
ISO 9000 certified planning procedures insures consistency.
- **Professional Documentation.**
P&ID drawings are the standard for clearing and cleaning plans. MOC level of detail for procedures is essential.
- **Professional Execution.**
Supervision should have intimate knowledge of the unit.

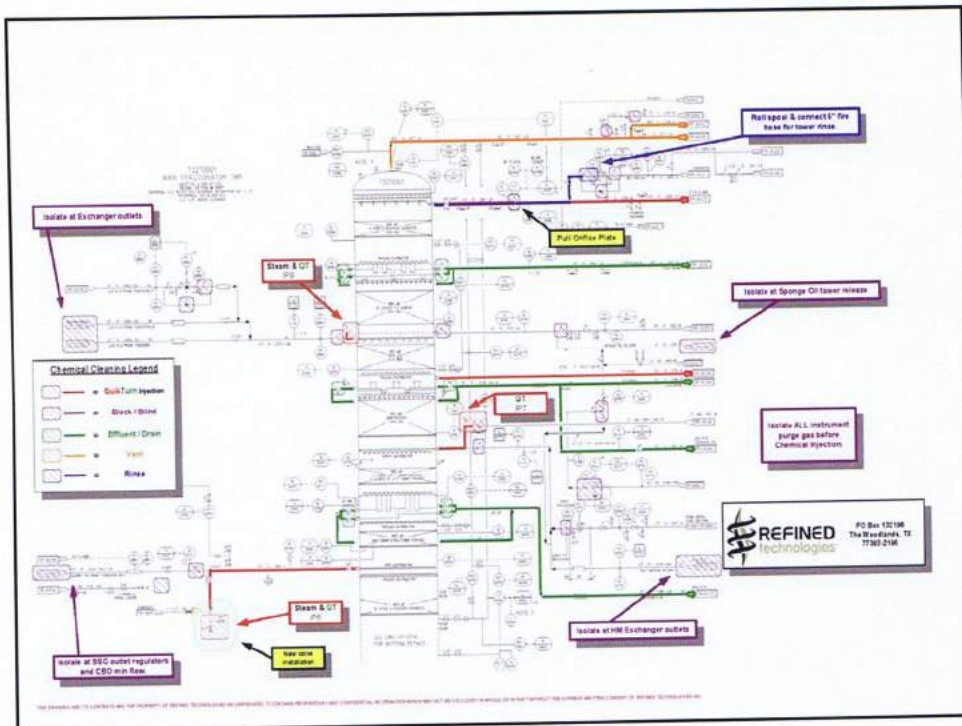




Applying QuikTurn & Super Q Equipment & Utilities

- Pneumatic piston drum pumps
- 3/4" bleeders as injection points
- 125# steam
- Plant air
- Proprietary manifold

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Post-Cleaning Results



Post-Cleaning Results Oil Sands Coker Fractionator





Post-Cleaning Results Oil Sands Atm & Vac Towers



2nd Manway from Bottom

HVGO Packing



Heavy Gas Oil Draw

Top Chimney Tray



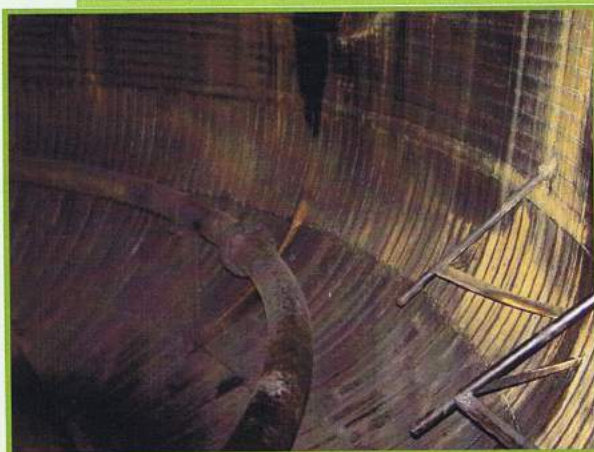
 **REFINED**
technologies®

Tray #9





Post-Cleaning Results FCC Fractionator Bottom



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Post-Cleaning Results Coker Main Frac. Bottom Standpipe



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Post-Cleaning Results

Vacuum Tower Packing



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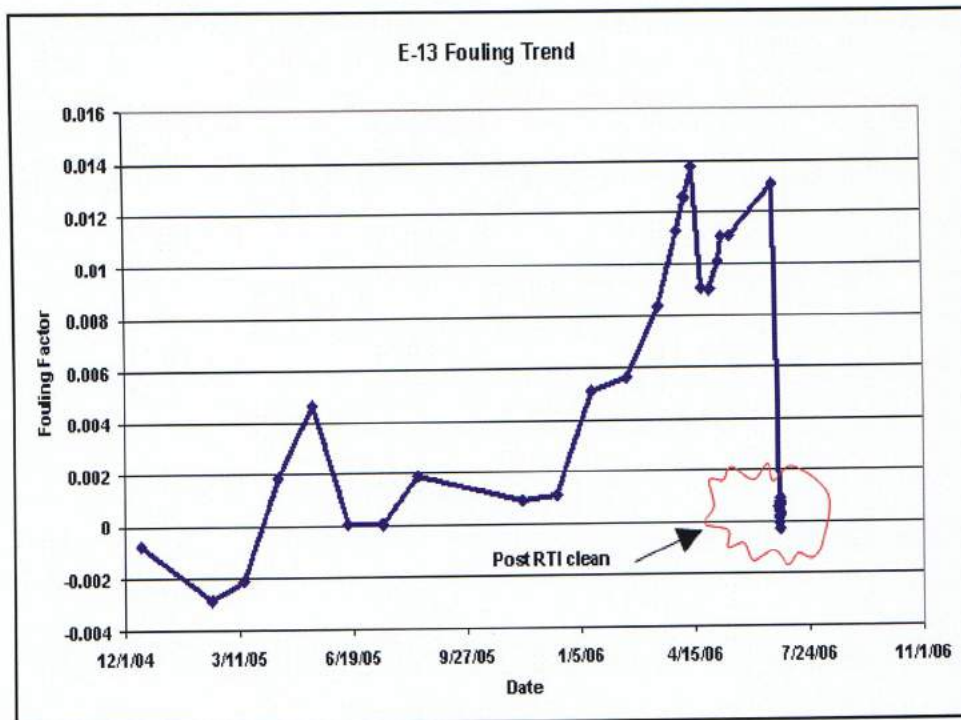
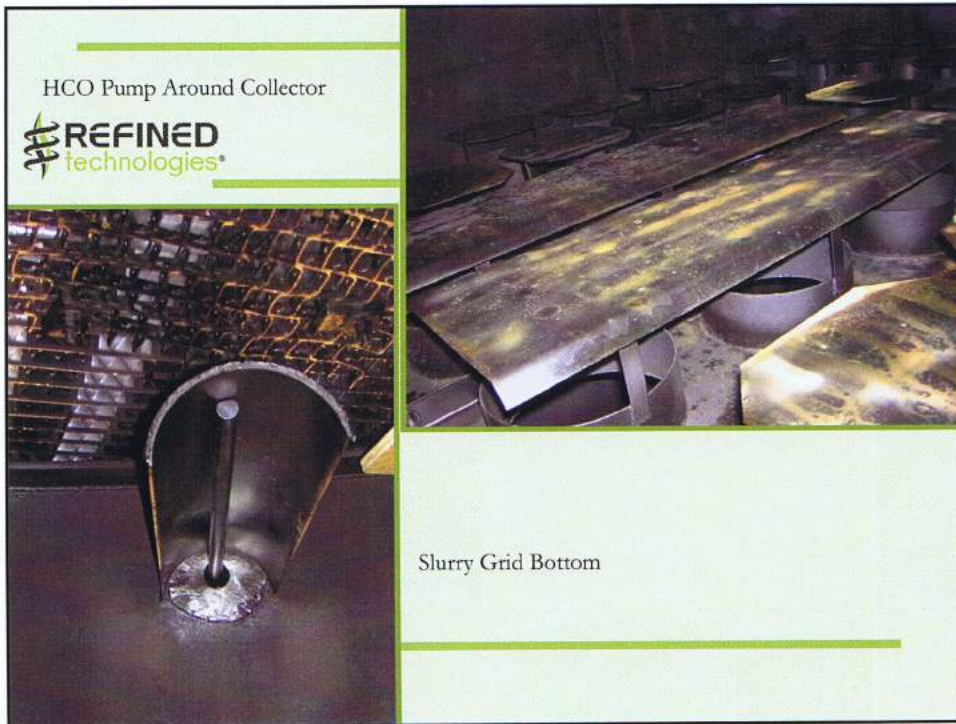


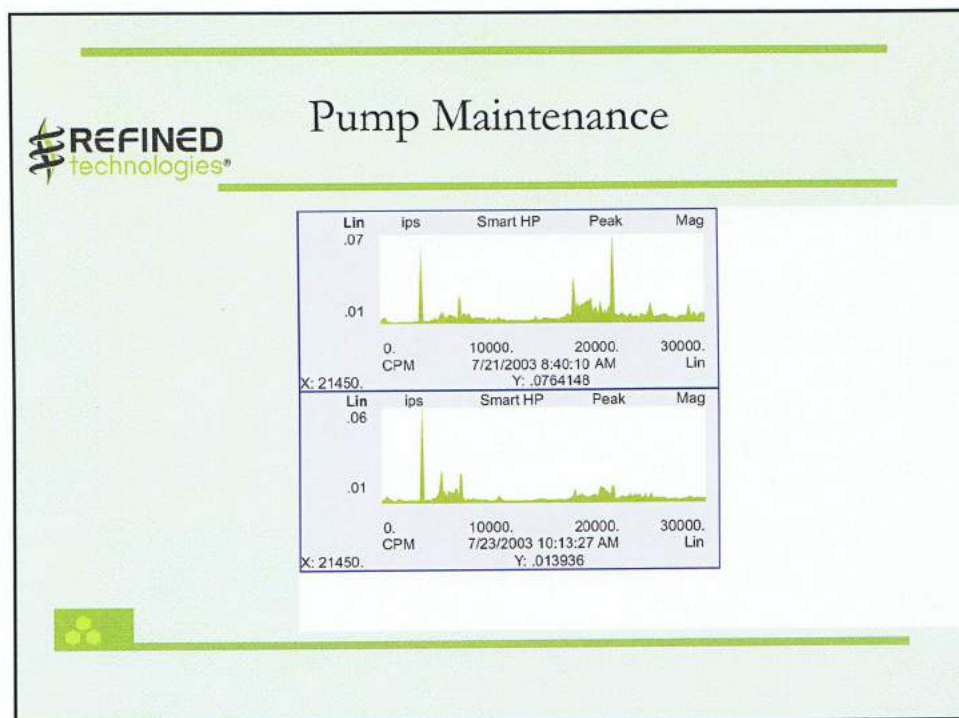
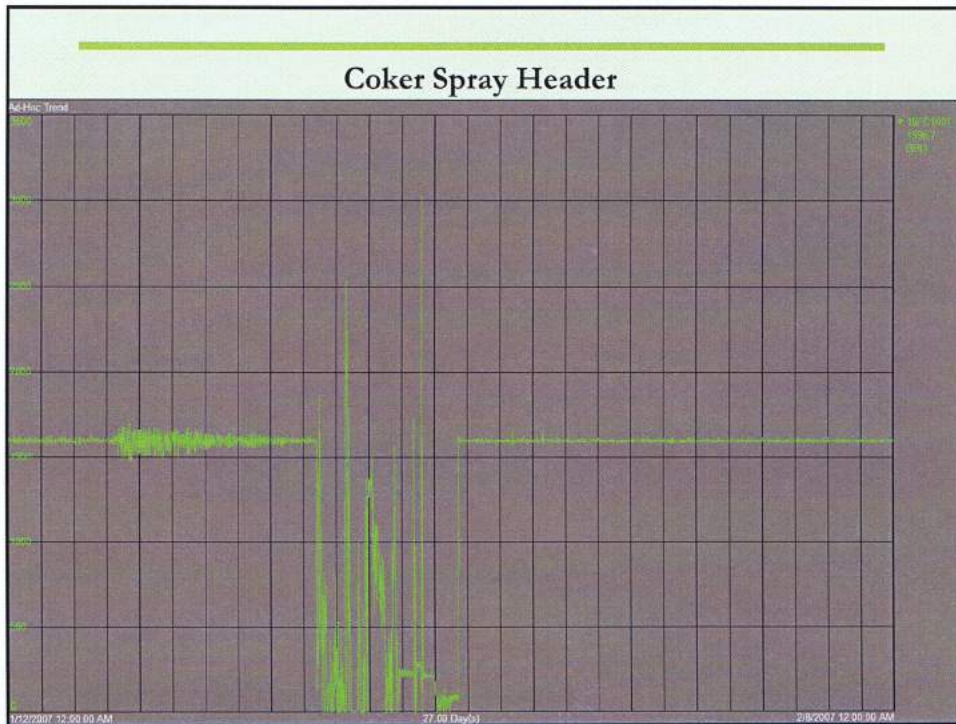
Post-Cleaning Results

Atmospheric Tower Drain



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Thank You For Your Time

- Patented Technology – it is patented for a reason.
- Consider Strategic Chemistry for Upcoming T/As
- Consider Strategic Chemistry to for Process Operation Improvement
- **Think Strategic Chemistry!**

Contact: **cnath@r-t-i.com**



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