



Tales From The Dark Side

The Optimum Coker Operator

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Jeanne and Todd

Yes, we work for a living



Refineries Seeking Answers To Two Key Questions To Strengthen Positioning

Competitiveness

Looking outside the fence

“How competitive
is my refinery
in the marketplace?”

Efficiency

Looking inside the fence

“How well is my
refinery operating
the facilities that it
has today?”

How Well Is A Refinery Operating The Facilities That It Has Today?

- Operational perspective – focus on efficiency
- Comparison of total costs and resources
 - Taking into account actual configuration aspects – number and size of individual process units and other structural aspects

Focus is on the effectiveness of cost control and resource management typically within a refinery manager's control

What makes a Coker unique?

- A dirty unit
- A physical unit
- Driven by Switch, warm up and blowdown cycles
- It is both process and mechanical in it's nature

Operations

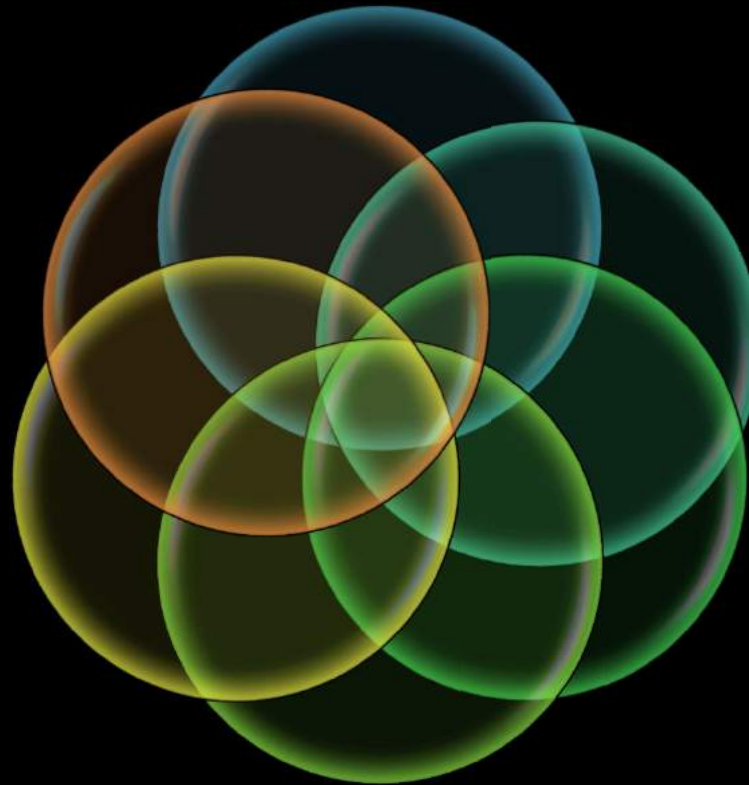
Maintenance

Management

**Vendor and
contract resources**

**Mechanical &
Process
Engineering**

**Process safety
Management**





During Outage

- Ops mined out the Pre-Frac tower
- Saved \$250,000 in contract services (none were available)
- Increased run time of Coker unit

The Message:

Operations is the one group, constantly “living” with the Process and Pipe and can literally save its’ refinery millions of dollars. When embedded with other disciplines and vendors, refineries can reap the rewards of a cost effective and efficient Organization



OPERATIONS



OPS

Instrumentation/logic

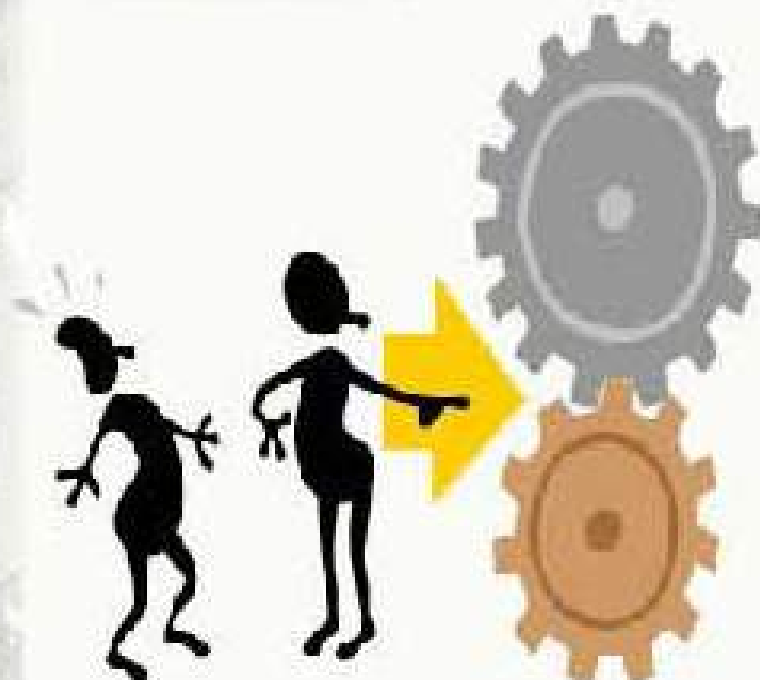
Flows and Controllers

Rounds/Readings/Relief and unit equipment

Safety Equipment/Evacuations and Egress



CSB Investigations Reveal Gaps: Training



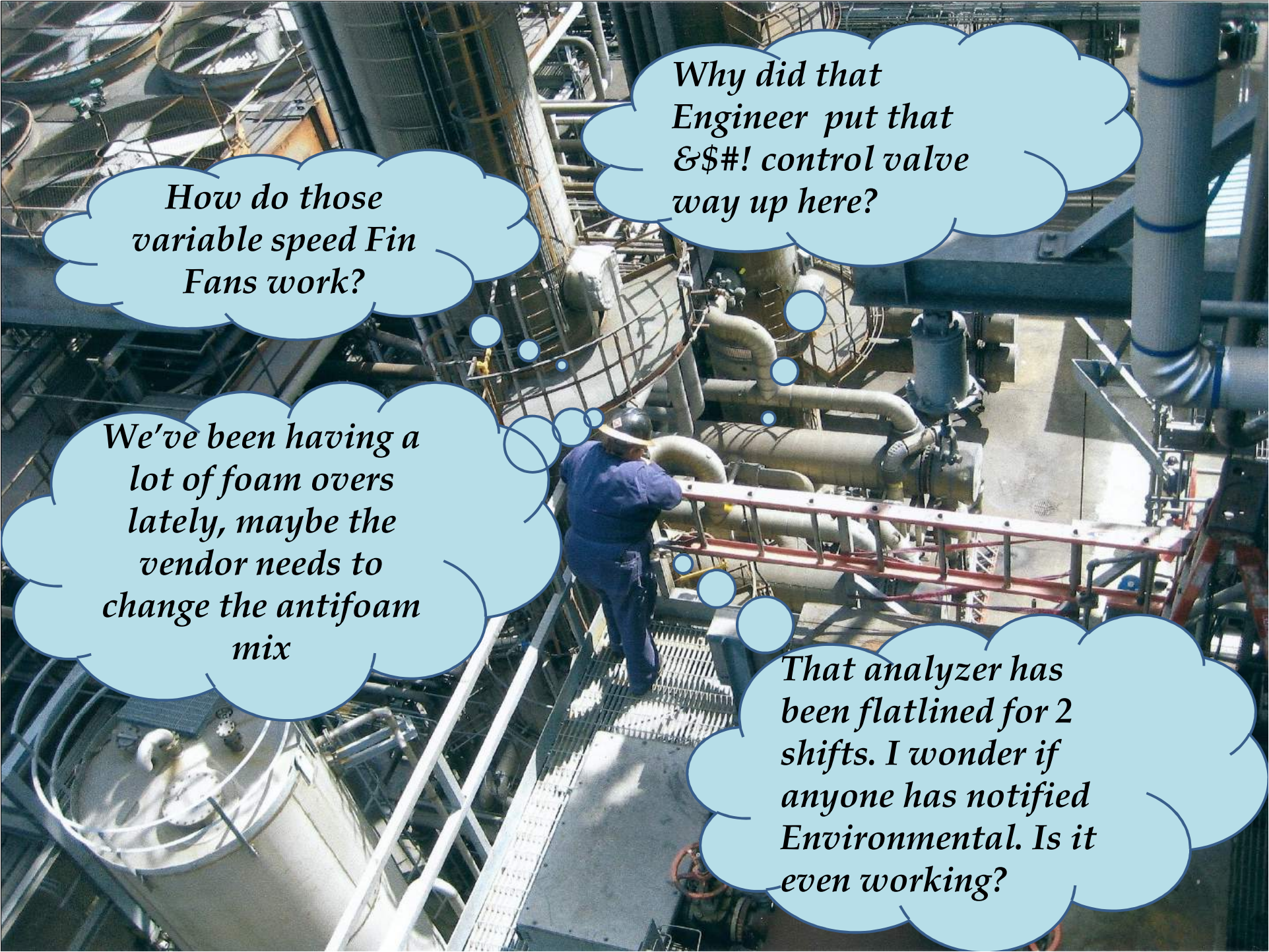
- Little formal structured or documented training
- Not reinforced
- Little training in abnormal situations mgmt

The Extra mile

- Step-up Foreman
- Trainer
- Process Safety management
- Coordinating Projects



Working these areas will only enhance your skills as an Operator

A photograph of an industrial facility, likely a refinery or chemical plant. A worker in a blue uniform and hard hat is standing on a metal platform, looking down at some equipment. The background shows various pipes, tanks, and structural elements of the plant. Four thought bubbles are overlaid on the image, each containing a question or statement related to the scene.

*How do those
variable speed Fin
Fans work?*

*Why did that
Engineer put that
&\$\$! control valve
way up here?*

*We've been having a
lot of foam overs
lately, maybe the
vendor needs to
change the antifoam
mix*

*That analyzer has
been flatlined for 2
shifts. I wonder if
anyone has notified
Environmental. Is it
even working?*

In the mid-nineties, a Solomon study was done in Refining to explore and analyze Maintenance costs. Contrary to the initial assumption, Refinery Age, size and location had virtually no effect on refining Operations.

Multi-refining organizations showed little consistency in performance across their locations.

The research discovered :

12% profit difference between the Refineries in the lowest and highest performance quartiles

One of the major findings of the study:

Tapping the resourcefulness of the Process Operators to contribute to the reliability improvement and maintenance accomplished by training Operations staff in multiple skills. Refineries investing in job rotation and training paid off in reduced maintenance costs and higher refinery utilization

Benefits

Operators become truly proficient in troubleshooting realistic-complex problems in a wide range of situations



A Venn diagram consisting of two overlapping circles on a black background. The left circle is a dark teal color and contains the word 'OPERATIONS' in white, serif, all-caps font. The right circle is a dark brown color and contains the word 'MAINTENANCE' in white, serif, all-caps font. The two circles overlap in the center, creating a darker, purplish-brown intersection area.

OPERATIONS

MAINTENANCE

Tools of the Trade



In a combined effort Maintenance and Operations can work toward increased reliability of unit equipment

How?

- Maintenance coordinator in the Unit could be filled by Operations or Maintenance personnel**
- Create a critical equipment list, including Stores Personnel to verify all equipment is stocked on site.**
- Maintenance and Ops Lunch and Learn concerning new equipment being introduced to unit and/or discuss “Bad Actors” in the unit.**

•Organize a Unit communications group to Discuss and resolve such items as:

➤Small capital and non-routine projects within the area


➤“Top 10” list of items unit Engineers, maintenance and Ops want to tackle

A Venn diagram with three overlapping circles on a black background. The top circle is blue and labeled 'OPERATIONS'. The bottom-left circle is brown and labeled 'MECHANICAL & PROCESS ENGINEERING'. The bottom-right circle is green and labeled 'MAINTENANCE'. The circles overlap in the center and at the intersections of two circles.

OPERATIONS

MECHANICAL
& PROCESS
ENGINEERING

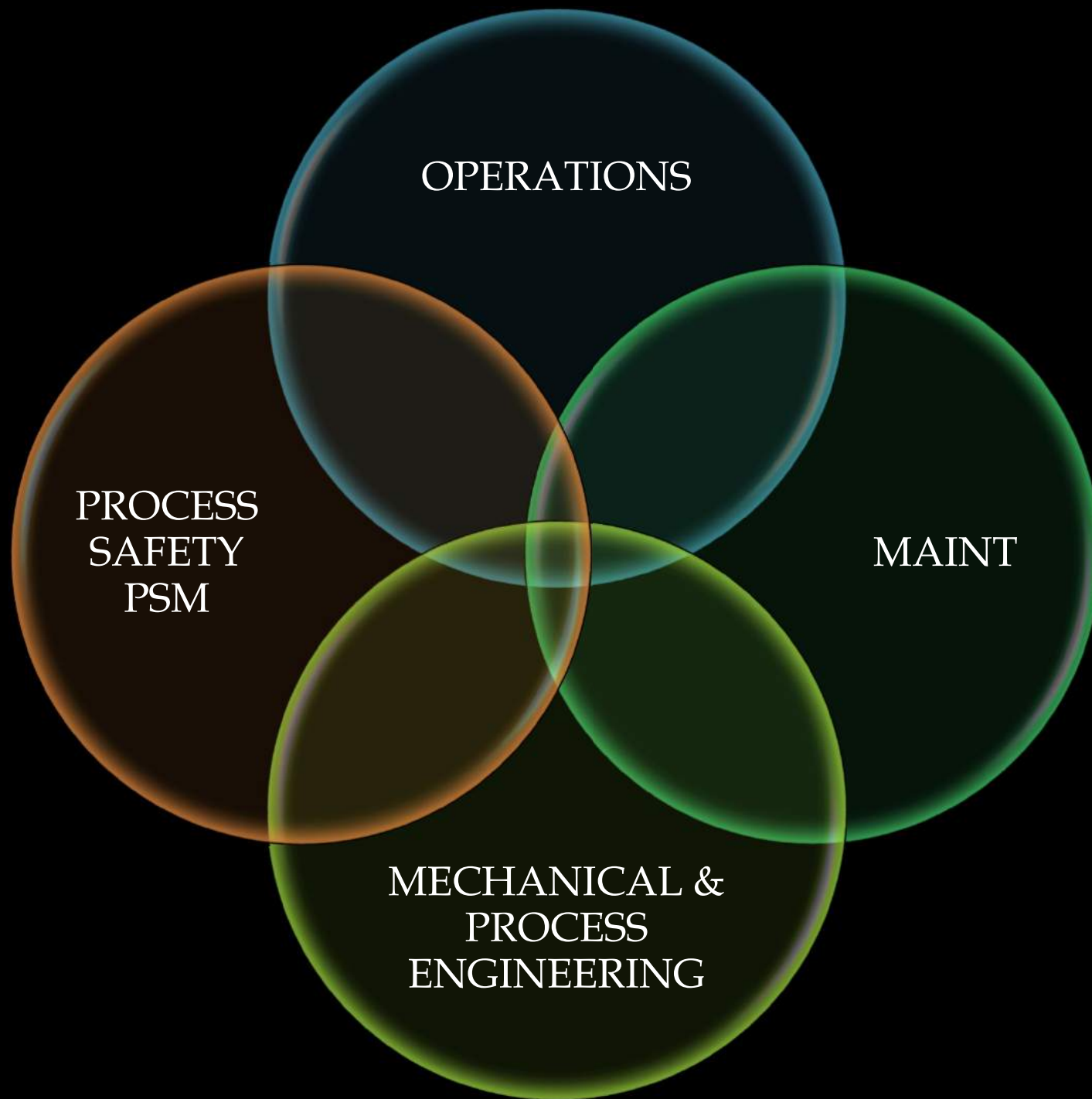
MAINTENANCE



There goes
the budget

...

I did the calcs and
all those support
columns looked fine



What's Covered by PSM?

- Process Safety Information
- Employee Involvement
- Process Hazard Analysis
- Operating Procedures
- Training
- Contractors
- Pre-Startup Safety Review
- Mechanical Integrity
- Hot Work
- Management of Change
- Incident Investigation
- Emergency Planning and Response
- Compliance Audits
- Trade Secrets

The PHA or Hazop template provides an excellent outline for Refinery teams. Typically a team would include the following:

Mechanical and/or Process Engineer

Unit Foreman

Unit Operator

Maintenance Coordinator

Vendor/Outside Resource

Inspection

Environmental/Health

Process Safety Specialist



Using What You Learn

- The ideas and techniques of Process Hazard Analysis will be immediately useful in Project groups, alarm rationalization, Process revalidation, and the use of new equipment or Chemicals.
- Expect to be part of a Process Hazard Analysis Team early on in your professional career

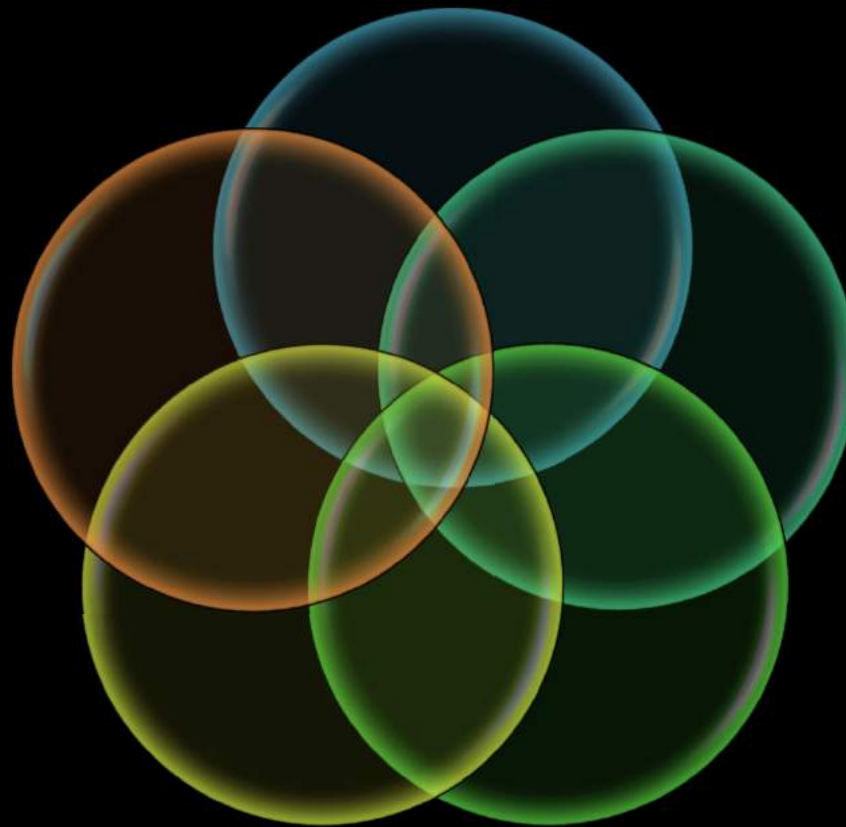
OPERATIONS

VENDOR AND
OUTSIDE
RESOURCES

MAINTENANCE

PROCESS
SAFETY
PSM

MECHANICAL
& PROCESS
ENGINEERING





Vendors and outside resources, hold a wealth of information and experience . Their support and involvement with Operations , Maintenance and Engineering can supply the Refinery with what it needs.

- When possible, include at shelter meetings, Vendors who supply Equipment and Chemicals to the unit, to discuss, demonstrate and educate personnel.

For example:

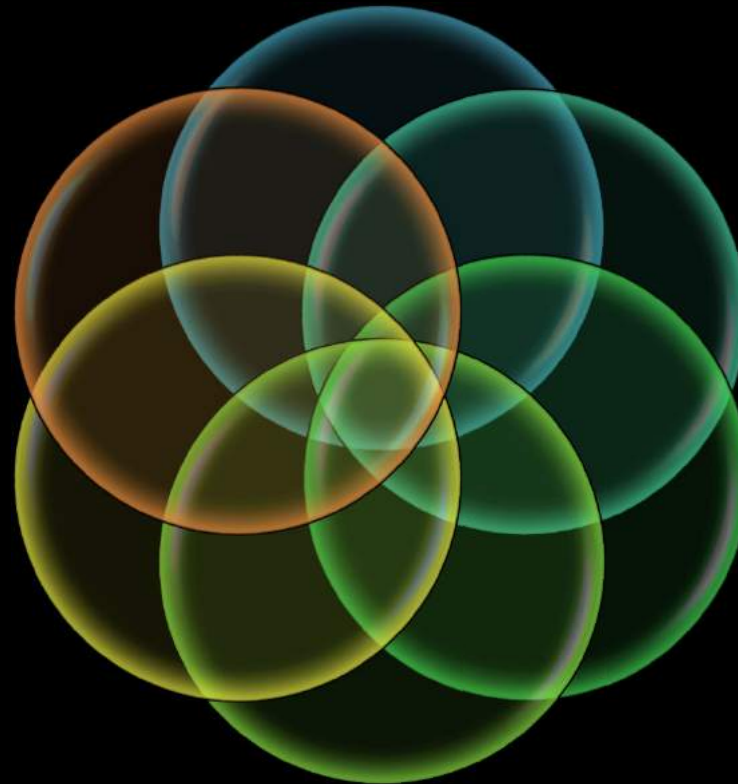
- Analyzers
- Chemical Injection systems
- Specialized valves, pumps, filtration and logic systems

OPERATIONS

MANAGEMENT

MAINTENANCE

VENDOR AND
OUTSIDE
RESOURCES



MECHANICAL
& PROCESS
ENGINEERING

PROCESS
SAFETY
MANAGEMENT



When you look at your people, do you look at costs to be reduced?

Do you see employees prone to opportunism, and free riding who can't be trusted?

Do you see employees who can and should be contracted out to save labor costs?

OR

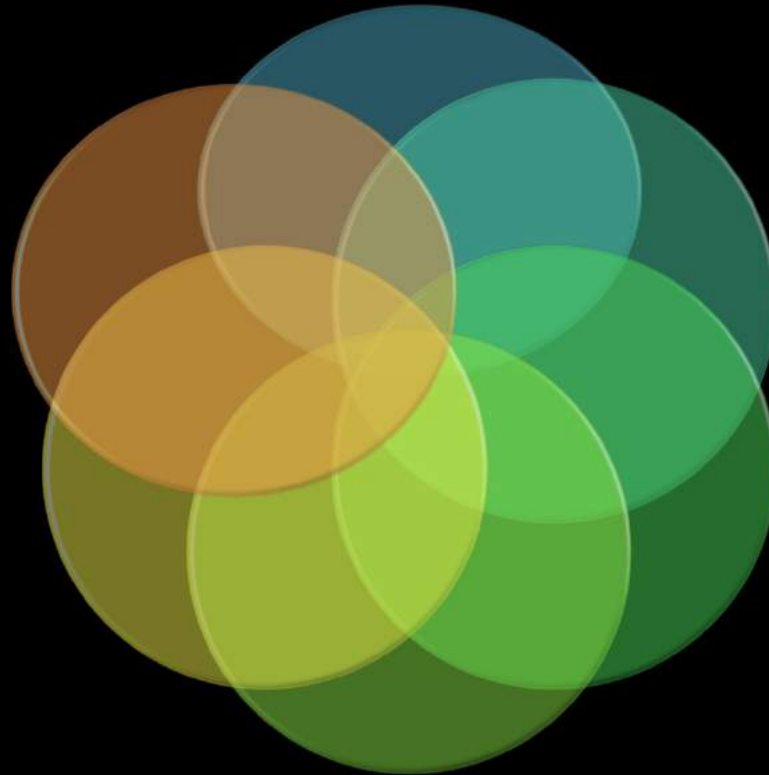
Do you see the most critical and strategic assets your organization has?

With the right perspective and mindset, managers can determine how to implement high performance management practices

Knowledge transfer

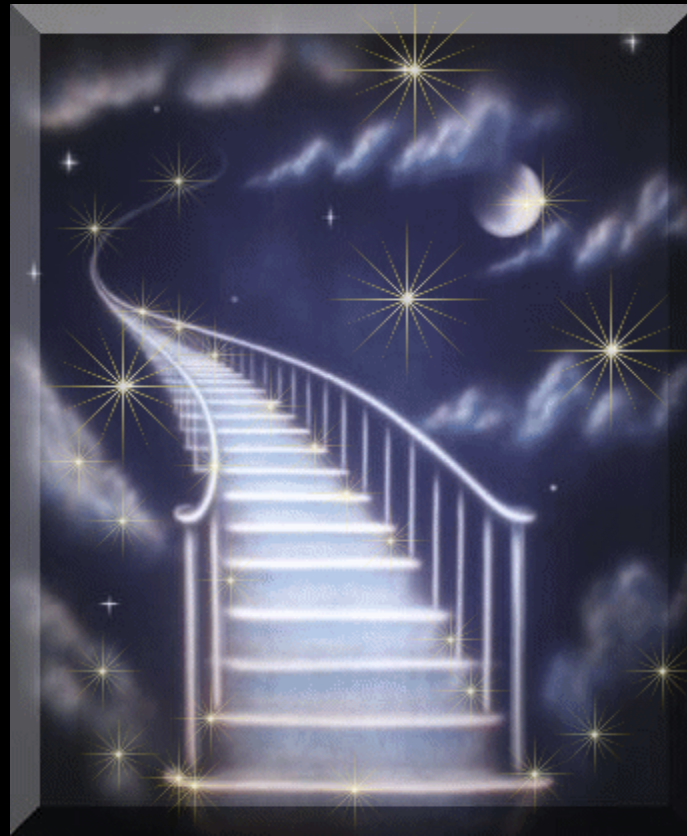
By 2015, it is estimated that 20% of the work force will be 55 or older. If companies allow their experienced workers to retire, there will be a crisis of inexperience in the workplace in the next 10-15 years

The whole is greater than
the sum of the Parts

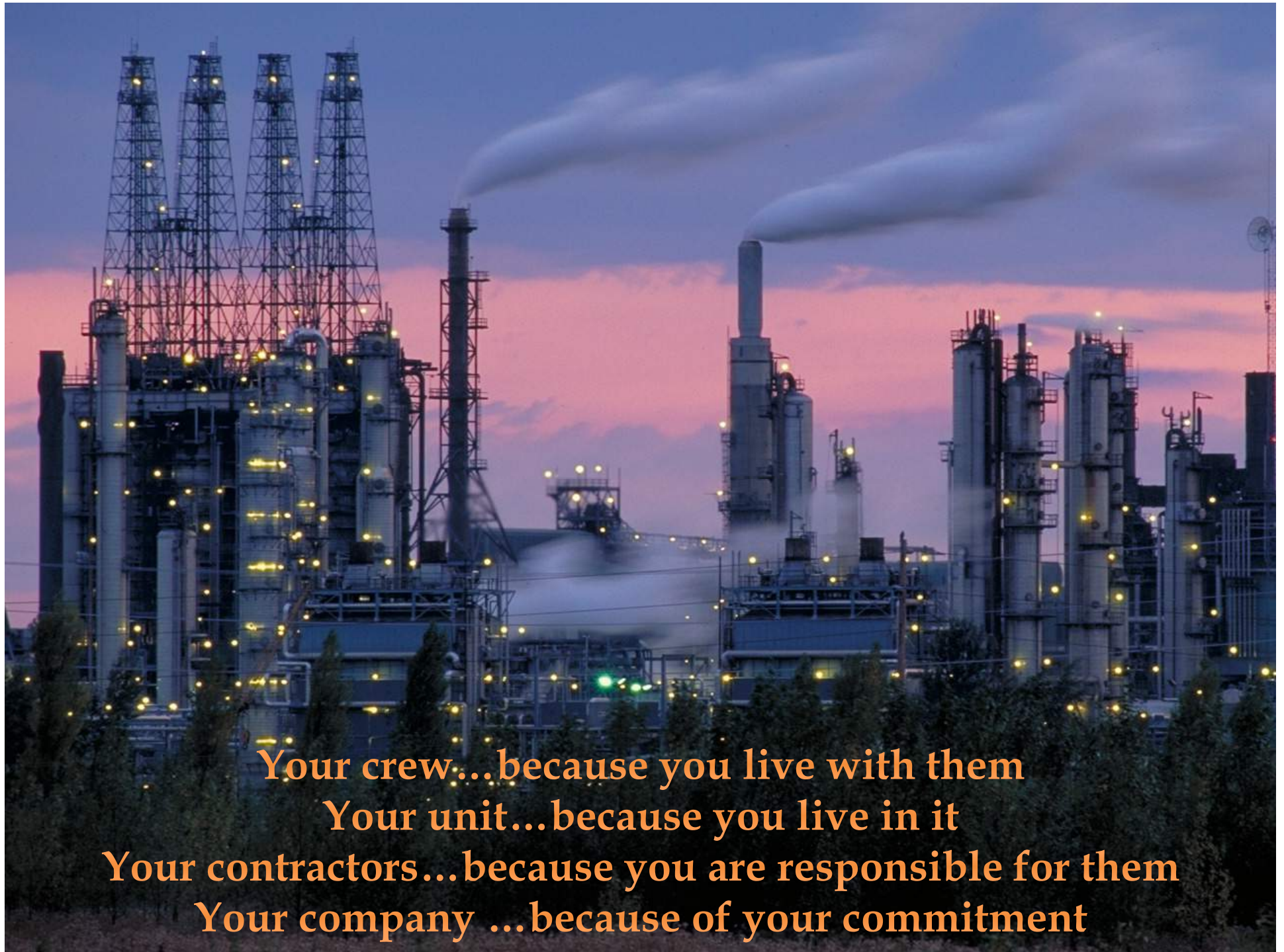


**Operations, Maintenance, Engineering, Process
Safety, Vendors and management fostering
maximum productivity and reliability**

The Optimum Coker Operator



**Support your crew, your unit, your
contractors and your company**



Your crew...because you live with them

Your unit...because you live in it

Your contractors...because you are responsible for them

Your company ...because of your commitment

Jeanne Rameau and Todd Lingbloom provide their hands-on experience and advising through the Coking.com Resources group.

They are available for commissioning, procedure writing, training, field services, turnaround support and various projects.

For more information, contact
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