Return on Imagination
Chris Stearns
Operations Excellence
Operations Excellence

- What is OE?
- Why OE?
- How?
- What’s it look like?
What is Operations Excellence?

Doing things well to provide a competitive advantage in the marketplace

Safe Operations
Reliability
Product Quality
Efficiency
Management of Change
Environmental
What is Operations Excellence?

- Define
- Measure
- Analyze
- Improve
- Control
## Why Operations Excellence?

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Capacity</td>
<td>5 %</td>
</tr>
<tr>
<td>Improved capacity utilization</td>
<td>3 %</td>
</tr>
<tr>
<td>Decreased unscheduled shutdowns and slowdowns</td>
<td>50 %</td>
</tr>
<tr>
<td>Improved productivity</td>
<td>10 %</td>
</tr>
<tr>
<td>Reduced fixed cost</td>
<td>15 %</td>
</tr>
<tr>
<td>Improved energy utilization</td>
<td>5 %</td>
</tr>
</tbody>
</table>

Why Operations Excellence?

“For an average-sized refinery, these improvements should deliver an economic benefit of $25 million/year”

Why Operations Excellence?

“...ensure effective management of abnormal situations.”
Why Operations Excellence?

“the design of OEMS fully addresses, and in some respects goes beyond, the requirements of ISO 14001 and OSHAS 18001”

“Safety and environmental performance within Chevron’s operations has improved since the deployment of OEMS.”
Why Operations Excellence?

Causes of Poor Asset Performance

- Operating out of range: 76%
- Improper design: 10%
- No defect found: 5%
- Improper maintenance: 5%
- Improper material: 2%
- Improper installation: 2%

How Does Honeywell Support OE?

Management Structure and Policy

Change Management and Compliance

Applications and Support Tools

Work Processes

Alignment and Awareness
Operate Correctly
Operate in Design Envelope
Operator Surveillance
Operations Tasks
Solve Specific Problems
Track Performance

How Does Honeywell Support OE?

Alignment and Awareness
- Operate Correctly
- Operate in Design Envelope
- Operator Surveillance
- Operations Tasks
- Solve Specific Problems
- Track Performance

- Dashboards (Workcenter)
- Operating Targets/Instructions (Operating Instructions)
- Training Simulators (UniSim Operations)
- Procedures
- Alarm Help
- Boundary Management
- Alarm Management
- IntelaTrac PKS
- ASM Effective Operator Interface
- Logbook
- Operations Monitoring
- KPI Manager
- Yield Accounting
- Reports

- Yield Accounting
- Reports
Operating in the Design Envelope Today

The Road Ahead.

Your Driver.

The Result.

The Operator.

The Process.

The Result.
How Does Honeywell Support OE?

Alignment and Awareness

Operate Correctly

Operate in Design Envelope

Operator Surveillance

Operations Tasks

Solve Specific Problems

Track Performance

- Dashboards (Workcenter)
- Operating Targets/Instructions (Operating Instructions)

- Training Simulators (UniSim Operations)
- Procedures
- Alarm Help

- Boundary Management
- Alarm Management

- IntelaTrac PKS
- ASM Effective Operator Interface

- Logbook

- Operations Monitoring
- KPI Manager
- Yield Accounting
- Reports

- Yield Accounting
- Reports
Current Practice – No Alarm, No Problem

One problem in an otherwise perfect day

All problems resolved, nothing else to report
Know Your Limits

- Planned operation beyond alarm limit
- Why is the alarm limit here, anyway?
- Planning target changed but nobody knew

On plan, but in trouble....
Know Your Limits

- Violating equipment parameters
- Increased fouling until now
- Violating equipment parameters

Economic operation
## Boundary Management

### Variable Entity Notes:

**Purpose of measurement:** Primary Feed into the tower

**Verification:**
Verify with output from upstream equipment

**Note:**
If No Boundary, Alarm, or Alert, why not?

### Boundary, Alarm or Alert strategy

Urgent and Normal alarms and Operating Target Boundaries are built for demo purposes.

### Alarm Enable Status:

#### Boundaries and Alarms:

<table>
<thead>
<tr>
<th>Boundary Name</th>
<th>Priority Param</th>
<th>Alarm Priority</th>
<th>Trip Point</th>
<th>Value</th>
<th>Reason for Value</th>
<th>Potential Impact</th>
<th>Inside Action</th>
<th>Outside Action</th>
<th>Escalation / Notification</th>
<th>SD Pre-Alarm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical_Hi</td>
<td>PVHMA,LM,PR</td>
<td>Urgent</td>
<td>PVHMA,TMP</td>
<td>4,209</td>
<td>Extreme high tower charge</td>
<td>Tower flooding, possible tower damage</td>
<td>Reduce charge immediately</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard_Hi</td>
<td>PVHMA,LM,PR</td>
<td>High</td>
<td>PVHMA,TMP</td>
<td>3,400</td>
<td>High tower charge</td>
<td>Possible tower flooding</td>
<td>Slowly reduce charge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target_Hi</td>
<td>PVHMA,LM,PR</td>
<td>High</td>
<td>PVHMA,TMP</td>
<td>3,150</td>
<td>Operating Target Boundary</td>
<td>Outside planned Operating Range</td>
<td>Check that Operating Instruction is correctly set.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target_Lo</td>
<td>PVHMA,LM,PR</td>
<td>High</td>
<td>PVHMA,TMP</td>
<td>2,850</td>
<td>Operating Target Boundary for Normal Mode</td>
<td>Outside planned Operating Range</td>
<td>Check that Operating Instruction is correctly set.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard_Lo</td>
<td>PVLO,LM,PR</td>
<td>High</td>
<td>PVLO,LM,TP</td>
<td>2,700</td>
<td>Low tower charge for Normal mode</td>
<td>Low production rate</td>
<td>Slowly increase charge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical_Lo</td>
<td>PVLLA,LM,PR</td>
<td>Urgent</td>
<td>PVLLA,TP</td>
<td>1,000</td>
<td>Extreme low tower charge</td>
<td>Possible tower trip</td>
<td>Increase charge immediately</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical</td>
<td>BADR,LM,PR</td>
<td>Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Operating Instructions

Operations Management - Operating Instruction

Production ▾ Instruction ▾ Monitoring ▾ Shift Summary ▾ Task ▾ Comment ▾ LIMS ▾ Go to...

Summary | Instruction | Event Summary | Formulation | Comments | Compare | AEM
--- | --- | --- | --- | --- | --- | ---
REFINERY

REF-CDU-MAXDIST-400019

Scheduled Start: 4/16/2008 10:11 AM
Mode: U10CDU_MAXDIST
Product: CRUDE
Specification:
Supplier/Customer:
Attribute 1:
Attribute 3:

Description: Maximize distillate production

Note: User: Sparrow, Jack (MALIBUAdministrator); Date: 4/16/2008 10:16:08 AM; Note: Steady charge today. Rates will increase tonight.
Operator Surveillance
Now, let’s go for that drive....

The Road Ahead.  

Your Driver.  

The Result.  

The Process.  

The Operator.  

The Result.
OE Addresses Industry Challenges

Safety
Protect People, Assets and Process
Billions lost per year in Petrochem Industry

Reliability
Improve Availability Reduce Downtime
Millions lost per year due to unplanned production losses

Efficiency
Improve Productivity Reduce Cost
Fewer people can make better decisions, faster