Huntington Beach Production Unit
Prevention First Symposium
September 10, 2008
Huntington Beach in the early days
When Huntington Beach was an oil boom town …
Huntington Beach Field History

• Discovered by Standard Oil Co. of California in 1920
• Production extended to offshore oil zones in 1930’s
• Waterflood projects commenced in early 1960’s
• Platform Emmy set in 1962
• Production and Injection peaked at 50,000 BOPD and 450,000 BWPD in 1972
• Most recent Waterflood initiated (Upper Main Zone) in 1993
Huntington Beach Unit

- Bolsa Chica
- Office
- Tank Farm
- DCU
Field Statistics

- Oil production: 4,100 BOEQ per day
- Natural gas production: 2,500 mcf per day
- Producers wells: 158 onshore
  27 offshore (Platform Emmy)
- Injection wells: 56
- Field extent: 2050 Onshore lease acres
  3500 Offshore lease acres
  92 fee acres “Facility Strip”
  ~1 fee acre “Fort Apache”

Aera Personnel: 45
Prevention First 2008 Symposium

**Bolsa’s (Onshore Reservoirs)**
- 75 active wells (62P, 13I)
- 850 boepd (21%)

**Strip (Offshore Reservoirs)**
- 85 active wells (52P, 33I)
- 1200 boepd (30%)

**Emmy**
- 27 active wells – all producers
- 1150 boepd (28%)

**State Lease (Offshore Reservoirs)**
- 23 active wells (13P, 10I)
- 670 boepd (17%)

Production: 2008 Annual Average
Huntington Beach Sub-Surface
Aera’s System of Operating Excellence (SOE)

- Do no harm to people
- 100% compliance
- Protect the environment

Policy & Program
Compliance Rates

Env. & Safety
Incident Rates

Operational
Reliability

Response
Effectiveness

10 Elements
- LEADERSHIP, COMMITMENT & INVOLVEMENT
- RISK MANAGEMENT
- MANAGEMENT OF CHANGE
- PEOPLE
- FACILITY DESIGN, OPERATION AND MAINTENANCE
- CONTRACTOR STEWARDSHIP
- ENVIRONMENTAL KEY PROCESSES & PROGRAMS
- HEALTH AND SAFETY KEY PROCESSES & PROGRAMS
- INCIDENT PREPAREDNESS, RESPONSE AND FOLLOWUP
- AUDITING

The EHS vision

The rear view mirror

Look here for leading indicators
& process measures
The System of Operating Excellence (SOE) framework documents the expectations for Aera’s operations.

• The framework identifies the key elements needed to achieve safe and reliable operations
  • There are ten elements (covering 34 expectations) that must be mastered to achieve excellence
  • Each expectation calls for “A process is in place to …”

• The framework provides a benchmark against which to measure current performance
SOE documentation can be accessed by Aera employees via the intranet.
The web pages document the five characteristics of the processes in place to meet each expectation.

... and provide links to supporting material ...
Each Asset within Aera also has an SOE web page to document and provide links to Asset specific processes.
SOE Governance

Roles and Responsibilities

- Policy and Focus Area Development
- Risk Management
- Process and Program Development
- Standardization
- Corporate Measures and Feedback
- Change Management
- Business Planning
- Implementation
- Verification & Measurement
- Feedback
- Process Execution
- Operating Excellence
- Data Quality
- Feedback

Feedback Mechanisms

- Weekly Incident Reporting
- Monthly Standardized Measures
- Monthly Business Plan Compliance
- Quarterly Risk Mgmt Discussion
- Bi-monthly Council Meetings
- Annual Focus Area effort
- Tactical Team status
- SOE Last Planner
- Monthly Reviews
- Annual Plan Effort
- Team Morning Meeting
- Unit Steering Teams
- Training
The SOE teams form a network that drives standardization and execution.

SOE linkage from Element Teams to Process Teams
Key SOE process review built into the Morning Meeting Agenda.

- **Safety Discussion/ Safety Manual Review**  - Discuss pertinent safety subjects or review sections of the Aera safety manual.
  - Pre-Job Work Plans? Energy Control?

- **Hazard/Near Hits/Incidents**  - Review any new incidents, Near Hits or reported Hazards, including housekeeping issues, that the group needs to be aware of?

- **MOC Review – Permanent or Temporary**  - Review any new MOC that impacts the work team, including reviewing any temporary defeated safety devices.

- **Title V & Other Environmental Issues**  - Review any planned activities that may have a conflict with the PTO or need regulatory clarification.

- **SOE Review**  - Review an expectation from the SOE framework. Discuss how team members impact, influence, participate or are affected by a particular expectation. Identify gaps and plans to fill gaps.

- **Today’s Work Schedule**  - Review work planned for today (Aera employees and contractors). Discuss potential hazards associated with work.

- **Restricted Access**  - Site Orientations needed? Transient Workers?

- **CAPP/Planned Observations**  - Discuss CAPP metrics and planned activities that should be observed.

- **RCFA Review of Root Cause & Follow-up**  - Following incident investigations, review the approved Executive Summary including CAP's

- **ISEA**  - Discuss ISEA metrics and planned activities that could be audited.

- **Training (weekly)**  - Worker Qualification, Adaptability Matrix progress?
  - Training this week? Upcoming backfill requirements?

- **Risk Management**  - Are there any new or unresolved operational risks that need to be elevated?
Insert "is" to be consistent with syntax of other lead sentences: Key SOE processes review is built..."
Each team has its own SOE web page for easy access to commonly used information.
### SOE Business Plans developed to ID and prioritize gaps and focus resources.

#### Milestones/Month

Instructions: Code those Actions completed in **Green**, Leave incomplete Actions in **Red** but do not change due date.

<table>
<thead>
<tr>
<th>Element</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Legend:</strong></td>
<td>Green = Done, Red = Not Done, Black = Due Date TBD</td>
<td></td>
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</tbody>
</table>

1. **Increase the amount of time Supervisors and Specialists spend in the field**
   - Work with Lean Group to "load level" Ventura CLAM Supervisor and Specialist time
   - Begin tracking Supervisor and Specialist time in the field
   - Begin tracking "load leveling" effort for Process Team
   - Provide refresher training for Process Teams on Elements 1&2
   - Provide refresher training for Process Teams on Elements 3&4
   - Provide refresher training for Process Teams on Elements 5&6
   - Provide refresher training for Process Teams on Elements 7&8

2. **Load Level HB CLAM and/or Ventura Plants Team**
   - Complete HB Tank Farm PHA
   - Complete Emmy PHA
   - Plan PHA expansion at SOE2 team meeting
   - Provide training for PHA facilitation (move to 1Q2006)

3. **Misc**
   - Complete merging of 3 Asset 4.1 System Guides
   - Complete merging of 3 Asset 4.2 System Guides
   - Complete merging of 3 Asset 4.3 System Guides
   - Identify SAP WQ clean-up needed by process teams
   - Standardize ET4 WQ metric for inclusion in Aera wide SG
   - "Mature" on SAP WQ data clean-up items
   - Decide/assign "essential" requirements to SAP WQ (Aera effort sched for 2006?)

   **Legend:**
   - Green = Done
   - Red = Not Done
   - Black = Due Date TBD
Key metrics are tracked for each SOE Element and Process Teams are recognized for meeting goals.

Monthly Operating Excellence Recognition
Process Team Average Recognition Rate

Recognition Rate %

Number of Measures
Monthly Operating Excellence Recognition
Process Team Average Recognition Rate

Recognition Rate %

Number of Measures

- Recognition Rate
- Number of Measures
### 2000 Recognition Metrics

<table>
<thead>
<tr>
<th>Element 5</th>
<th>1. PM Compliance Total Equipment – over 90%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. PM Compliance Critical Equipment – over 95%</td>
</tr>
<tr>
<td></td>
<td>3. PM/(PM+CM) ratio Total Equipment – over 35%</td>
</tr>
<tr>
<td></td>
<td>4. PM/(PM+CM) ratio Critical Equipment – over 35%</td>
</tr>
<tr>
<td></td>
<td>5. Front Line Maintenance over 20%</td>
</tr>
<tr>
<td>Element 6</td>
<td>6. PM Compliance Environmental – over 95%</td>
</tr>
<tr>
<td></td>
<td>7. CAPP Coverage 1X observation - 90% coverage</td>
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<tr>
<td></td>
<td>8. CAPP Coverage 2X observation - 60% coverage</td>
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<tr>
<td></td>
<td>9. CAPP PIP’s vs. Target 100%</td>
</tr>
<tr>
<td></td>
<td>10. PM Compliance Safety – over 95%</td>
</tr>
<tr>
<td>Element 7</td>
<td>11. ISEA Observations 100% of goal</td>
</tr>
<tr>
<td></td>
<td>12. ISEA YTD % Follow Ups completed over 50%</td>
</tr>
</tbody>
</table>

### 2008 Recognition Metrics

<table>
<thead>
<tr>
<th>Element 1</th>
<th>Leadership, Involvement and Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. # of Certificates of Recognition awarded - goal is at least 2* proactive COR’s awarded by each process team to one of the team members</td>
</tr>
<tr>
<td></td>
<td>2. Process Hazard Analysis Corrective Action Compliance - goal 100% by the due date</td>
</tr>
<tr>
<td>Element 2</td>
<td>Risk Management</td>
</tr>
<tr>
<td></td>
<td>2. Process Hazard Analysis Corrective Action Compliance - goal 100% by the due date</td>
</tr>
<tr>
<td></td>
<td>3. Business closed orders requiring MOC with a user status of MOCC - at least 90% (YTD beginning 11/02)</td>
</tr>
<tr>
<td>Element 3</td>
<td>Management of Change</td>
</tr>
<tr>
<td></td>
<td>4. Work Improvement Team actions implemented - goal is that action(s) are taken each month to positively impact Safety or Environmental Performance and Production or Expenses</td>
</tr>
<tr>
<td></td>
<td>5. Worker Qualification Progress</td>
</tr>
<tr>
<td>Element 4</td>
<td>Facility Design and Operation</td>
</tr>
<tr>
<td></td>
<td>6. PM Compliance - Total Equipment - over 90%</td>
</tr>
<tr>
<td></td>
<td>7. PM Compliance - Critical Equipment - goal is 100%</td>
</tr>
<tr>
<td></td>
<td>8. PM/(PM+CM) ratio - Total Equipment over 30%</td>
</tr>
<tr>
<td></td>
<td>9. Proactive to Reactive Maintenance over 65%</td>
</tr>
<tr>
<td></td>
<td>10. CBM CAP’s completed on time</td>
</tr>
<tr>
<td>Element 5</td>
<td>Contractor Stewardship</td>
</tr>
<tr>
<td></td>
<td>11. Feedback submitted on Contractor Performance - goal is one feedback form a month</td>
</tr>
<tr>
<td></td>
<td>12. Contractor Recordable Injury – goal is 0</td>
</tr>
<tr>
<td>Element 6</td>
<td>Environmental Key Processes and Programs</td>
</tr>
<tr>
<td></td>
<td>13. PM Compliance - Environmental – 100%</td>
</tr>
<tr>
<td></td>
<td>14. Reportable Spills – goal is 0</td>
</tr>
<tr>
<td></td>
<td>15. Deviation without Breakdown Relief</td>
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<tr>
<td>Element 7</td>
<td>Health and Safety Key Processes and Programs</td>
</tr>
<tr>
<td></td>
<td>16. CAPP 1X Coverage - &gt; 90% coverage</td>
</tr>
<tr>
<td></td>
<td>17. CAPP 2X Coverage - &gt; 70% coverage</td>
</tr>
<tr>
<td></td>
<td>18. CAPP PIP’s vs. Target 100%</td>
</tr>
<tr>
<td></td>
<td>19. CAPP Coaching Contacts - 2X coverage at least 90%</td>
</tr>
<tr>
<td></td>
<td>20. PM Compliance - Safety - 100%</td>
</tr>
<tr>
<td></td>
<td>21. Employee Recordable Injury – goal is 0</td>
</tr>
<tr>
<td>Element 8</td>
<td>Incident Preparedness, Response and Follow-up</td>
</tr>
<tr>
<td></td>
<td>22. EHS RCFA Compliance - Goal is 100% completed within 30 days</td>
</tr>
<tr>
<td></td>
<td>23. Equipment Reliability RCFA compliance – must make progress towards annual goal</td>
</tr>
<tr>
<td></td>
<td>24. RCFA Corrective Action Plan Completion - Goal is to complete all by due date</td>
</tr>
<tr>
<td></td>
<td>25. PIPER Reviews and ER Drills – one per month</td>
</tr>
<tr>
<td>Element 9</td>
<td>Audits</td>
</tr>
<tr>
<td></td>
<td>26. ISEA Audits 100% of goal</td>
</tr>
<tr>
<td></td>
<td>27. ISEA Follow Ups completed over 70% (12 month rolling average)</td>
</tr>
<tr>
<td></td>
<td>28. Level III Audit CAP’s completed on time</td>
</tr>
</tbody>
</table>

SOE processes have grown and matured over time.
Results are also shown by Element to help identify systemic gaps and associated improvement opportunities.
Each SOE expectation is periodically audited.

**PROCESS STATUS**

- The process is mature, having undergone at least one feedback, review, and improvement cycle.
- Revisions to process documentation have been made, if required
- The process is deployed in the organization
- Procedures for key process tasks, based on risk, are documented.
- Ongoing verification and measurement occurs
- The five characteristics of the management system processes are documented, approved, and resourced
- Procedures for key process tasks, based on risk, have been identified and are under development.
- Deployment is underway
- A documented process is being developed to address the potential hazards of the operation and to improve performance

**PROCESS EFFECTIVENESS**

- Level 4
  - The quality of process execution is excellent
  - Execution of the process conforms to essentially all process requirements
  - Essentially all process objectives are being achieved
- Level 3
  - Execution of the process conforms to the important requirements and most other requirements
  - The quality of process execution is good
  - Most process objectives are being achieved
- Level 2
  - Execution of the process conforms to the important process requirements.
  - The quality of process execution is acceptable
  - A majority of process objectives are being achieved
- Level 1
  - Execution of the process does not always conform to the process requirements.
  - The quality of process execution needs improvement
  - Some process objectives are achieved
Audit results have improved over time.

<table>
<thead>
<tr>
<th>Location</th>
<th>Number of Deficiencies</th>
<th>Audit Scores Status</th>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001: Initial SOE Audit - Coastal</td>
<td>0</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>2002: Midway Sunset</td>
<td>0</td>
<td>3.3</td>
<td>3.2</td>
</tr>
<tr>
<td>2003: Belridge</td>
<td>0</td>
<td>3.5</td>
<td>3.4</td>
</tr>
<tr>
<td>2004: Coastal</td>
<td>0</td>
<td>3.5</td>
<td>3.9</td>
</tr>
<tr>
<td>2006: Aera-Wide</td>
<td>0</td>
<td>3.7</td>
<td>3.9</td>
</tr>
</tbody>
</table>
SOE has contributed to a significant improvement in EHS performance.

### Huntington Beach Key EHS Performance Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2000</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil Spills</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Recordable Injuries</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Lost Time Injuries</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nov’s</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Breakdowns (AQMD)</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>EHS PM Compliance</td>
<td>60%</td>
<td>100%</td>
</tr>
</tbody>
</table>
**Surface Injection Conformance** maintaining high level of performance (wells within 10% of target injection rate)

Surface Injection Conformance
By YEAR

- % Conf.
- Yearly Acid Stim Well Count

Goal 80%

Acid Stim Well Count

- 0%
- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%

- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
SOE expectations support Aera’s Vision.