



DynMcDermott Petroleum Operations

M&O Contractor of the U.S. Department of Energy Strategic Petroleum Reserve

**Event: ASQ New Orleans Section 1518
May 9, 2006 General Meeting**

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Session Objectives

- Who is DynMcDermott
- The Customer - U.S. Department of Energy
- **The Partnership**
- The Baldrige Performance Excellence Model
- The role of Leadership, Strategic Planning, Systems, Processes and Performance Improvement
- Lean & Six Sigma and the Knowledge Worker

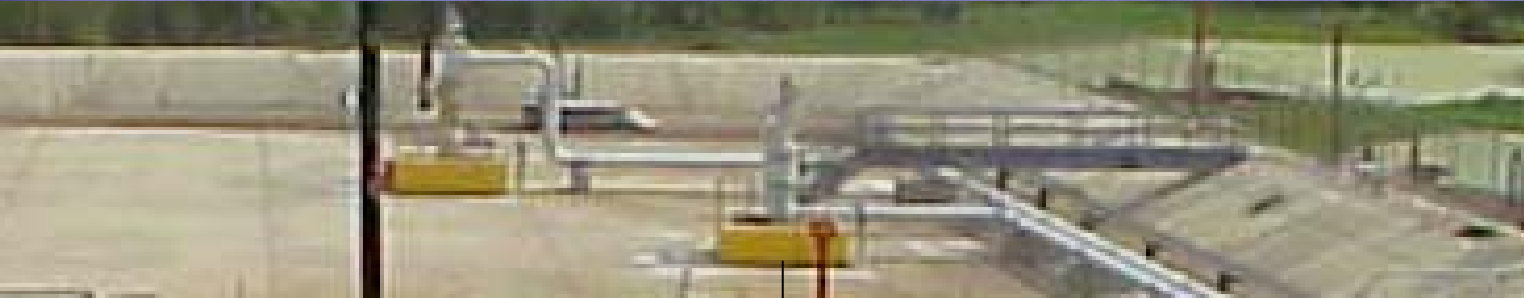
Lean, Six Sigma and Strategy



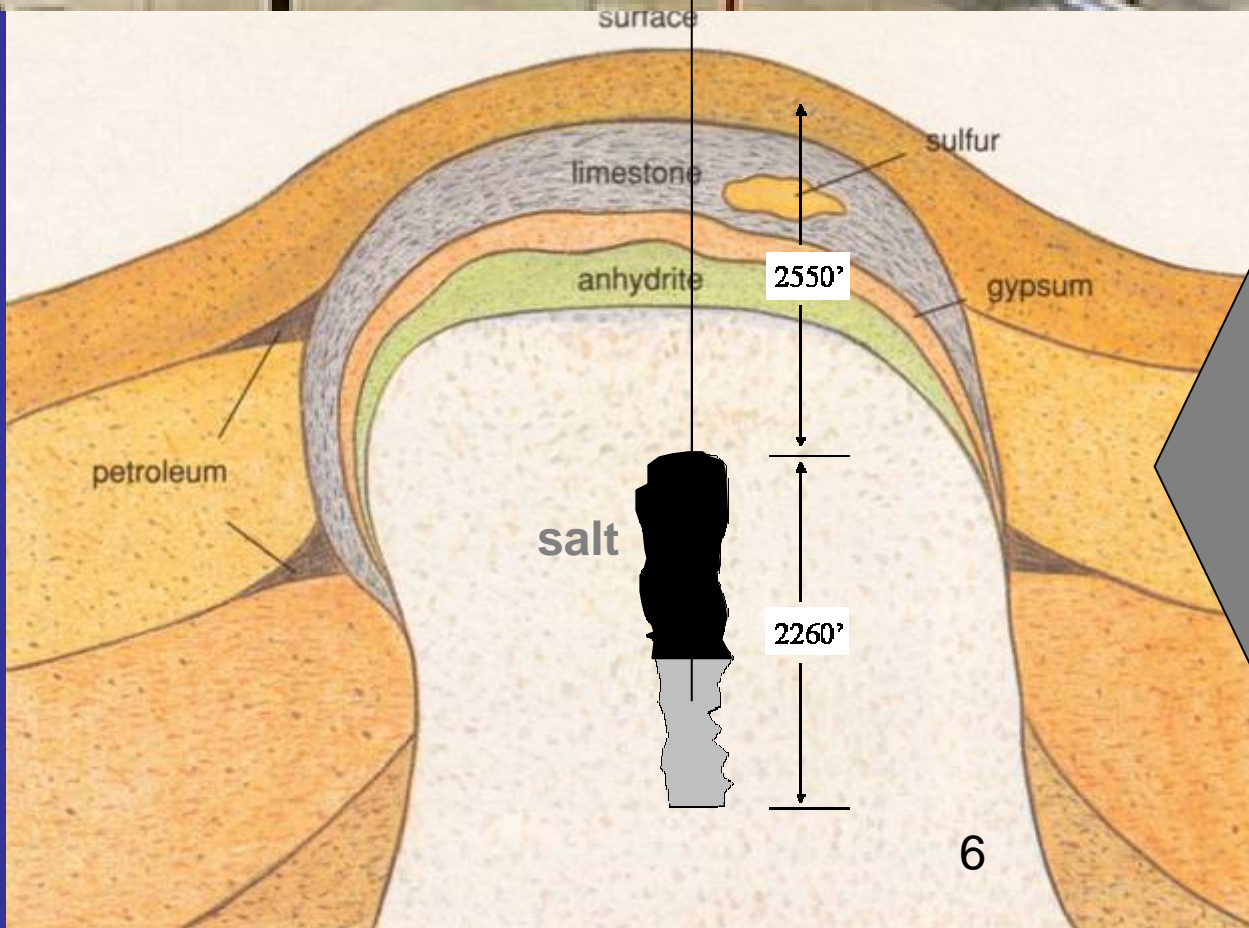
What We Do



What We Do

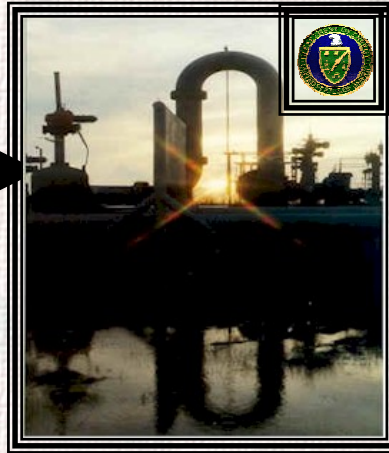


←
What
You
See



A salt
dome
structure
below
the
earth's
surface

Drawdown Process Is Critical to Mission



Petroleum Industry



Consumer



Where Do You Want to Go?

Alice asked the Cat, “Which road should I take?”
The Cat replied, “Well, that depends on where you want to go.”
“I really don’t care,” responded Alice.
Then, it really doesn’t matter which road you take,” answered the Cat.

--Alice in Wonderland



Questions

- "It is the first of all problems for a man to find out what kind of work he is to do in this universe."
-- Thomas Carlyle
- "I know of no more encouraging fact than the unquestionable ability of man to elevate his life by conscious endeavor."
-- Henry David Thoreau

Kaizen 改善, literally "change for the better" or "improvement" is an approach to productivity improvement



Why the Baldrige Business Model?

- Focus on Results and Creating VALUE
- Systems Perspective

Embodiment of Business Graduate School

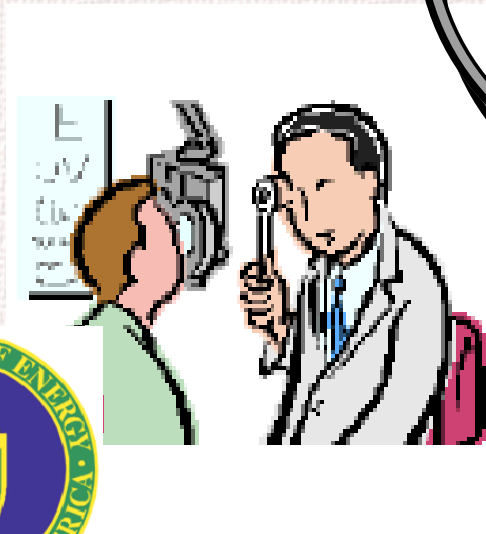
- Focus on the Future
- Solid theory –Performance Management
- It's free...well, sort of...
- Brings in all the good stuff
- Provides an organizational focus



Asked Us: "Is It Better Here, or Here?"



The **Baldrige
Criteria**



Baldrige Focus

- visionary leadership
- customer-driven excellence
- organizational and personal learning
- valuing employees and partners
- agility
- focus on the future
- managing for innovation
- management by fact
- social responsibility
- focus on results and creating value
- systems perspective

SPR
Performance



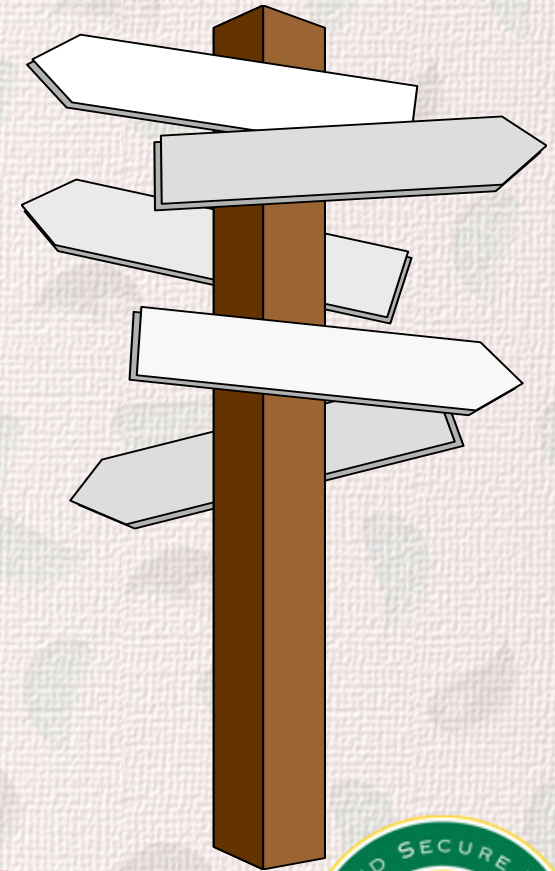
What Business Model, Systems, or Standards You Use?

1. Baldrige Criteria
2. Balanced Scorecard (Kaplan and Norton)
3. ISO 9000, 4. ISO 14000, 5. CMMI
6. Six Sigma, 7. Lean Enterprise
8. Project Management
9. Do What the Customer Tells Me to Do Model
10. Management by Budget for lack of anything else Model



Use the Criteria in a Change Environment

- Changing workforce
- Changing regulatory environment
- Changing standards
- Changing technology
- Changing resources
- Changing customer expectations



Innovation and Agility

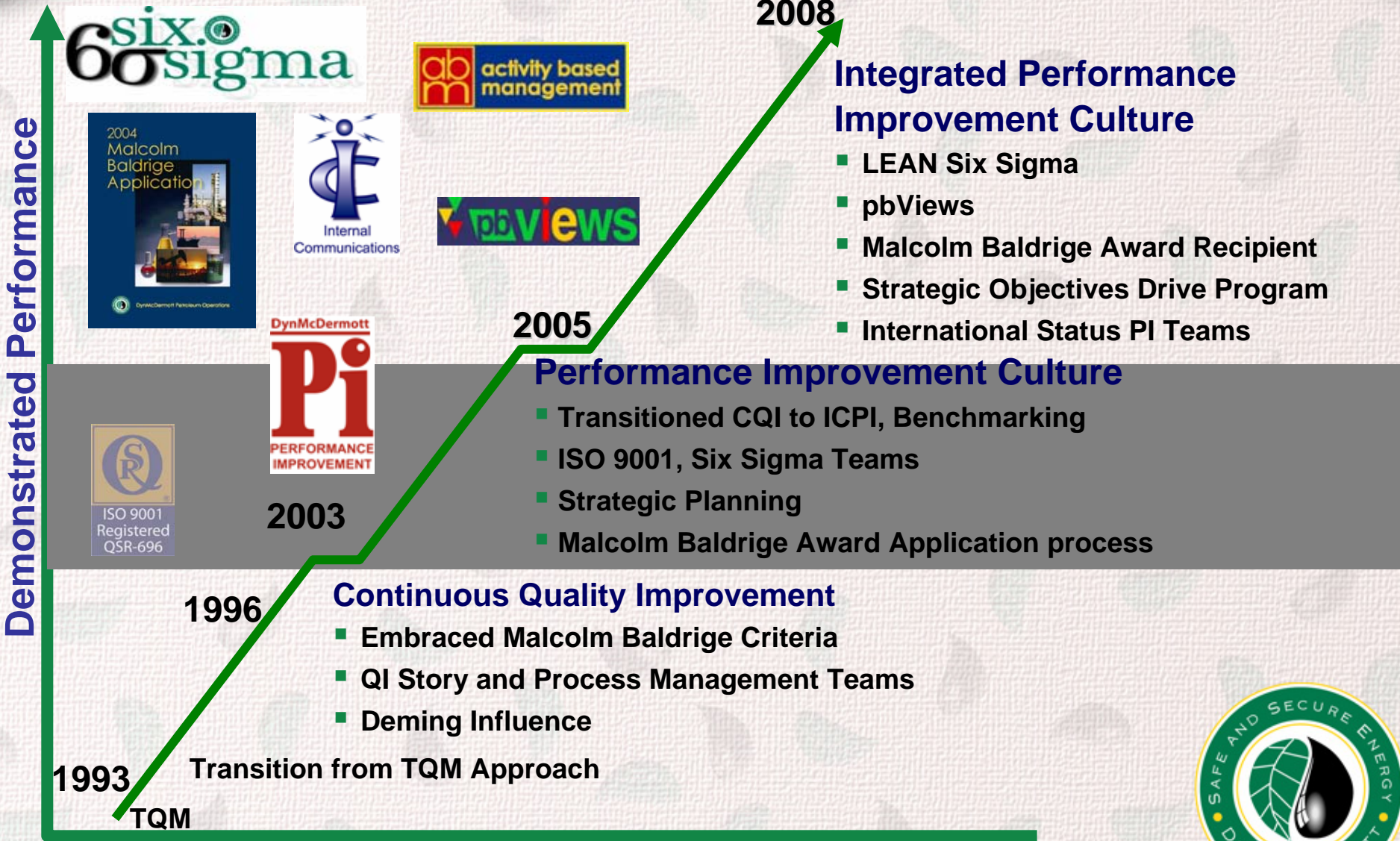


How We Achieved World Class Performance

- DOE and DynMcDermott Partnership
- During the 1990's DOE and DM used the Baldrige criteria to:
 - Develop Leadership
 - Set short and long term direction (Life Extension)
 - Understand the needs of customers (refiners)
 - Measure and analyze systems and processes
Lean and Six Sigma
 - Develop human resources for the future
 - Develop Lessons Learned and Benchmark to improve performance



Evolution



Alignment

Baldrige Criteria	ISO Mgt. Systems	SIX SIGMA
1 Leadership	Leadership Commitment	Senior Leadership
2 Strategic Planning	Quality Planning	Strategic Planning
3 Customer and Market Focus	Customer Focus	Voice of the Customer QFD
4 Measurement, Analysis and Knowledge Mgt.	Measurement, Analysis and Improvement	10X Return on Investment
5 Human Resources Focus	Resource Management	Train the organization
6 Process Management	Product/Service Realization	Process Management
7 Business Results	Quality Objectives	Business Results



Leadership

In order for improvement to be maintained and established permanently, senior leaders must see the need for change and support the change required. **This commitment must include an understanding of Baldrige and Lean Six Sigma.**

-James T. Schutta

Business Performance Through Lean Six Sigma



Forced Us to Answer Six Questions

- Who are we? (Our Values)
- What do we do? (Our Mission)
- Who do we do it for? (Our Customer)
- How do we do it? (Our Systems and Processes)
- How well do we do it? (Our Metrics)
- How do we know? (Our Feedback Mechanisms)

“...a common orientation point, pulling everyone toward the same future.”

--- Peter Senge



Organizational & Personal Learning

Leadership is Responsible for transforming Culture



**“Human Resources and
Knowledge Resources”**

Do workers have the knowledge
tools they need ?

Baldrige Criteria

Culture to support Improvement

Strategic direction - **PLANNING**

Process management

Problem solving **tools and skills**

LEAN & Six Sigma Tools
evolve beyond Process
Management to
Strategic Management



Outlined Our Journey

- Provide the **leadership**
- Select the destination- **PLAN**
- Create the culture
- Impart the knowledge
- Furnish the tools (**Lean & Six Sigma**)
- **Empower** the experts (knowledge workers)
- Celebrate the success

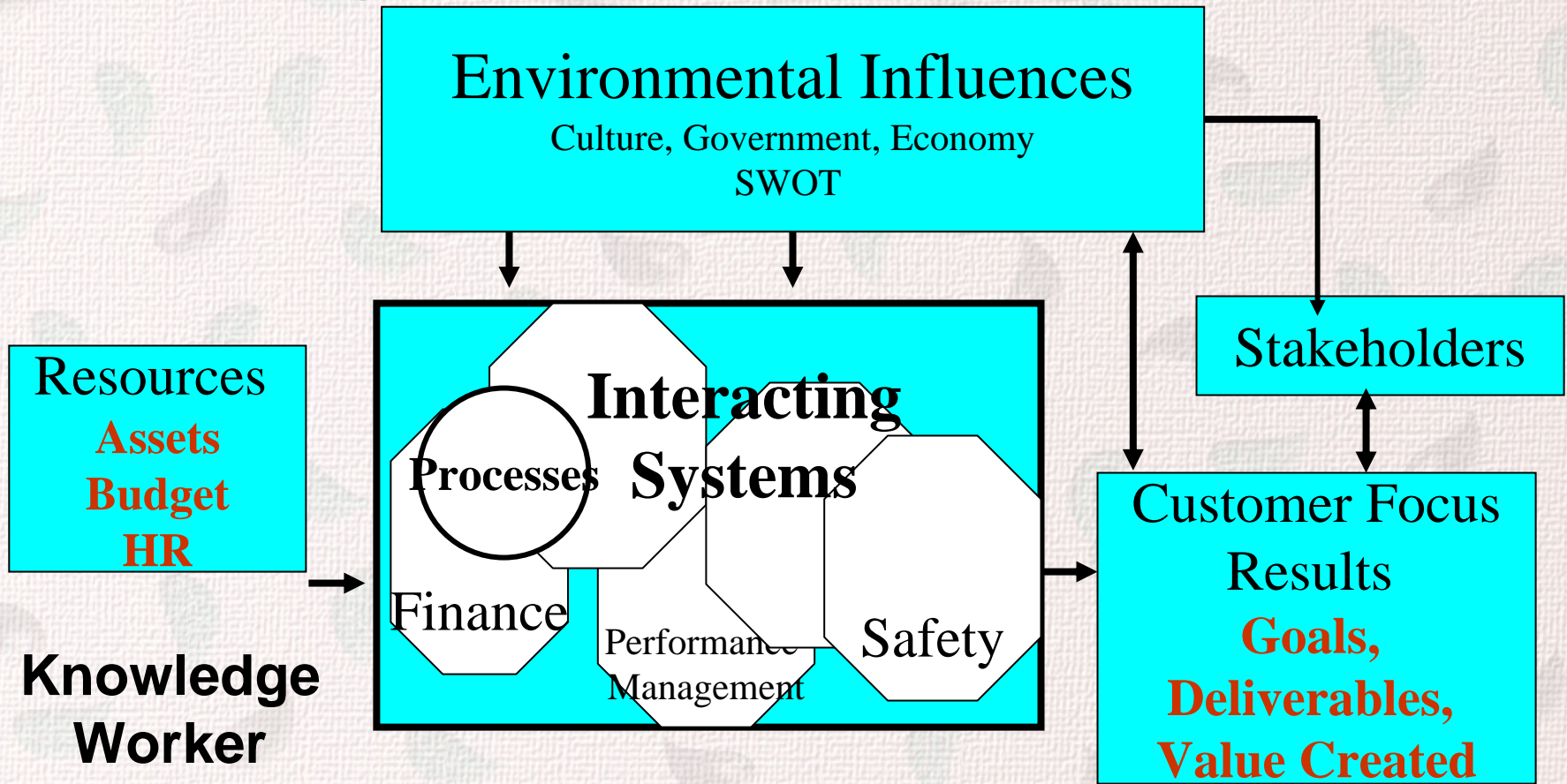


First, say to yourself what you would be;
then do what you have to do.”

---- Epictetus



An Organization of Adaptive Systems



Systems Perspective



Focused on Our Strategic Challenges

- C-1 Operations (i.e. Drawdown, Fill, Operations)
- C-2 Management Effectiveness
- C-3 Cost Management Efficiency
- C-4 Environmental and Safety Leadership
- C-5 Customer Satisfaction
- C-6 Succession Planning
- C-7 Knowledge Management



Deployment

- Six Sigma tools used in Strategic Planning
 - Brainstorming
 - Affinity Diagram
 - Balanced Scorecard
 - Quality Function Deployment (QFD)
 - P-D-S-A
 - Hoshin Planning

**Lean & Six Sigma tools
integrated into Strategy and
Works Systems**

Deployment and Improvement

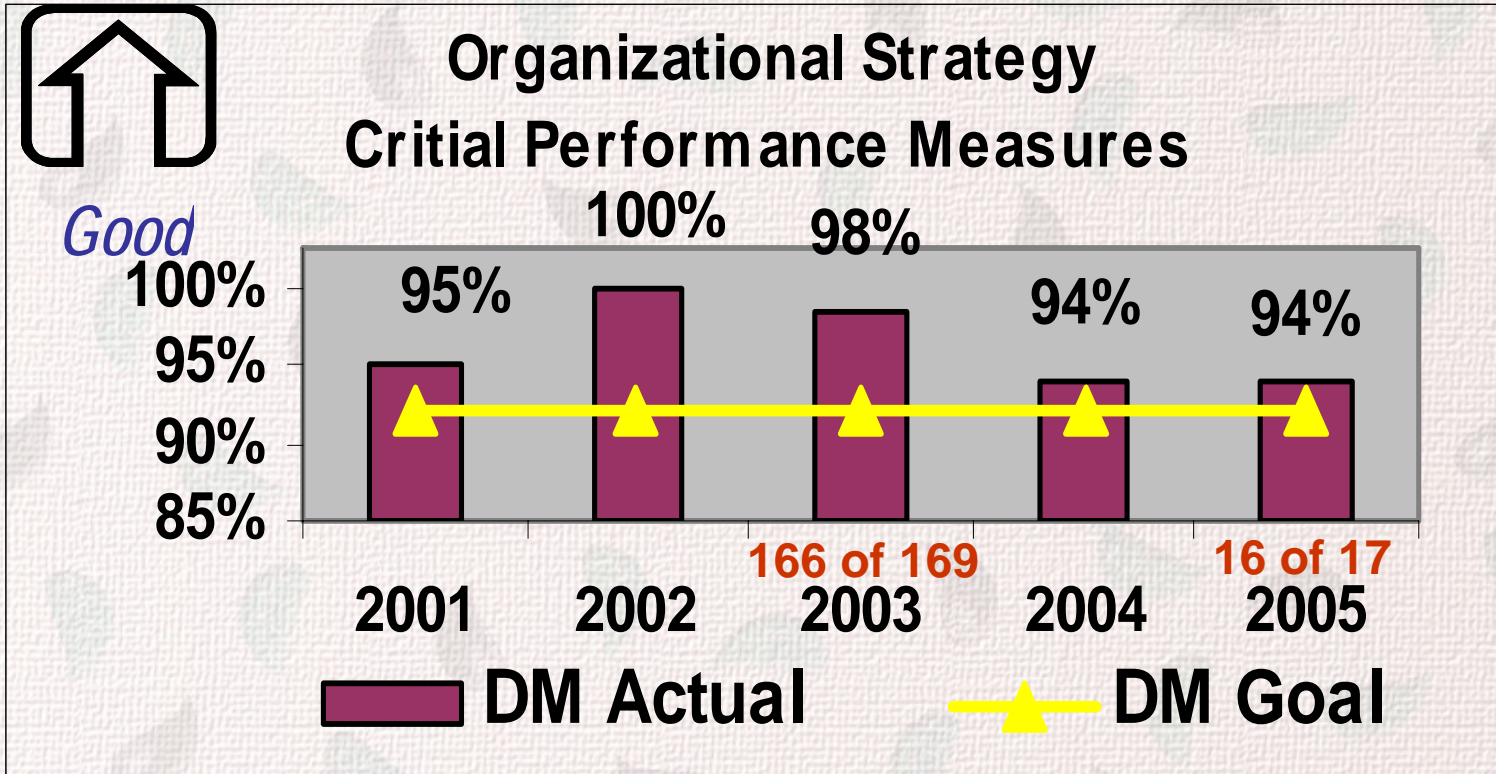
Strategic Planning

- P-D-S-A** Cycle in Strategic Planning ensures that:
- **Plans** are developed systematically
 - Plan performance is carefully monitored
 - **Agility** - changes to plans are made where necessary
 - **Breakthrough** objectives are attained
 - The planning process itself is standardized
 - The planning process is continuously improved
 - Identify **Lessons Learned**



Organizational Strategy

Strategic Planning



**In 2004, reduced
CPM's from 169 to 17**



World Benchmark

Strategic Planning

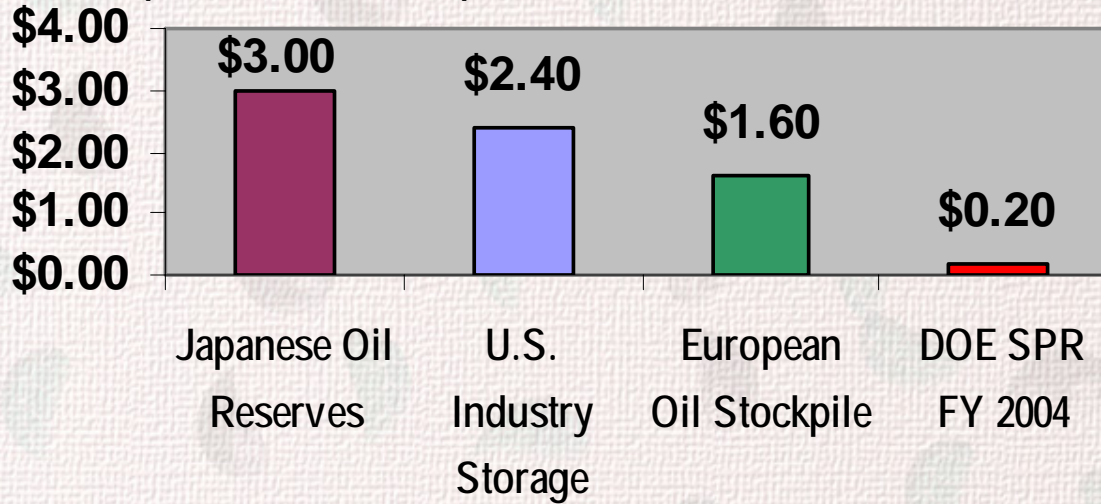


Good

Dollars per Barrel
Storage Cost

Storage Efficiency

- Japanese Oil Reserves
- U.S. Industry Storage
- European Oil Stockpile
- DOE SPR FY 2004



Customer & Market Focus

**How do we develop
customer knowledge and
relationships?**

Customer Focus



Customer & Market Focus

Customer Focus

- DM is structured to meet the needs of the contractual requirements
- DM **Structure, Strategy, Systems and related Processes** are aligned with the DOE organizational structure



Customer Relationships and Satisfaction

Customer Focus

- Key access mechanisms
- Complaint / feedback management Keeping approaches current
- Customer satisfaction
- Customer surveys (quarterly)
- Customer follow-up (formal and informal)
- Benchmarking (past, present and future)



Six Sigma Measurement



Performance Measurement

- Performance Measurement System
- Over 1,200 Business Process Measures
- Selecting, collecting, aligning, and integrating
- Innovation and continuous improvement



Lean Thinking and Six Sigma for Process Management and Process Design



Process Management

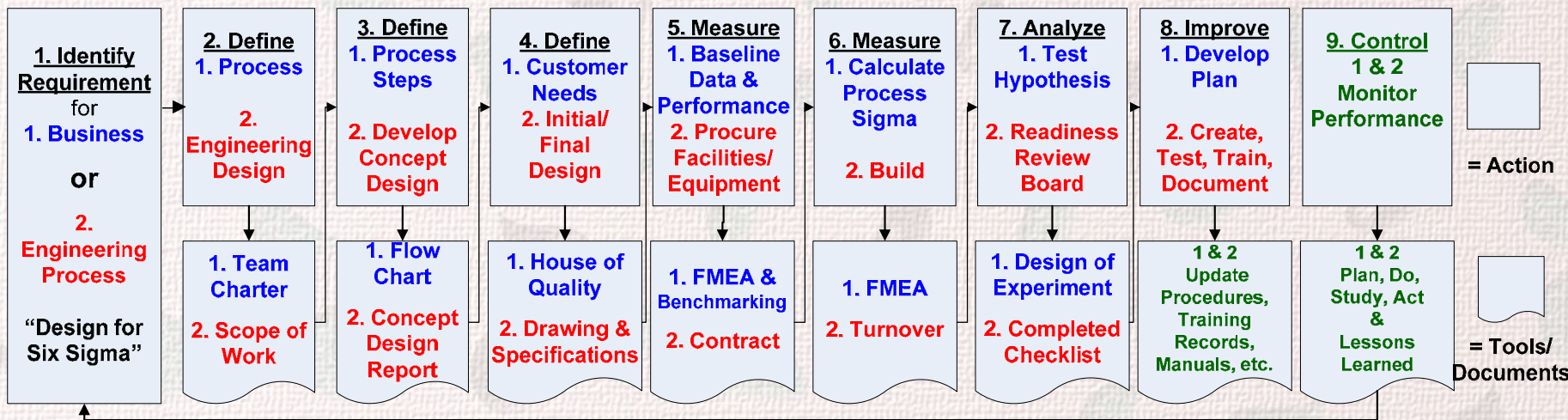
“...the analysis of work has to start with the question ‘What do we want to produce? What is the work itself? How can the end product be designed so as to make possible the easiest, the most productive, the most effective work?’
(Drucker, 1973)

Lean Thinking



Six Sigma for Process Design

Process Design / Improvement Methodology



Feedback Loop to Control and Improve Process



Key Value Creation Processes

- Crude Oil Acquisition (Fill Process)
- Drawdown Process
- Vapor Pressure
- Crude Oil Quality
- Maintenance Process
- Cavern Integrity
- Emergency Preparedness Process
- ISO 14001 Process (Environmental)
- Security

**Process Capability C_{pk}
linked to Strategic
Planning Balanced
Scorecard**

Process Management



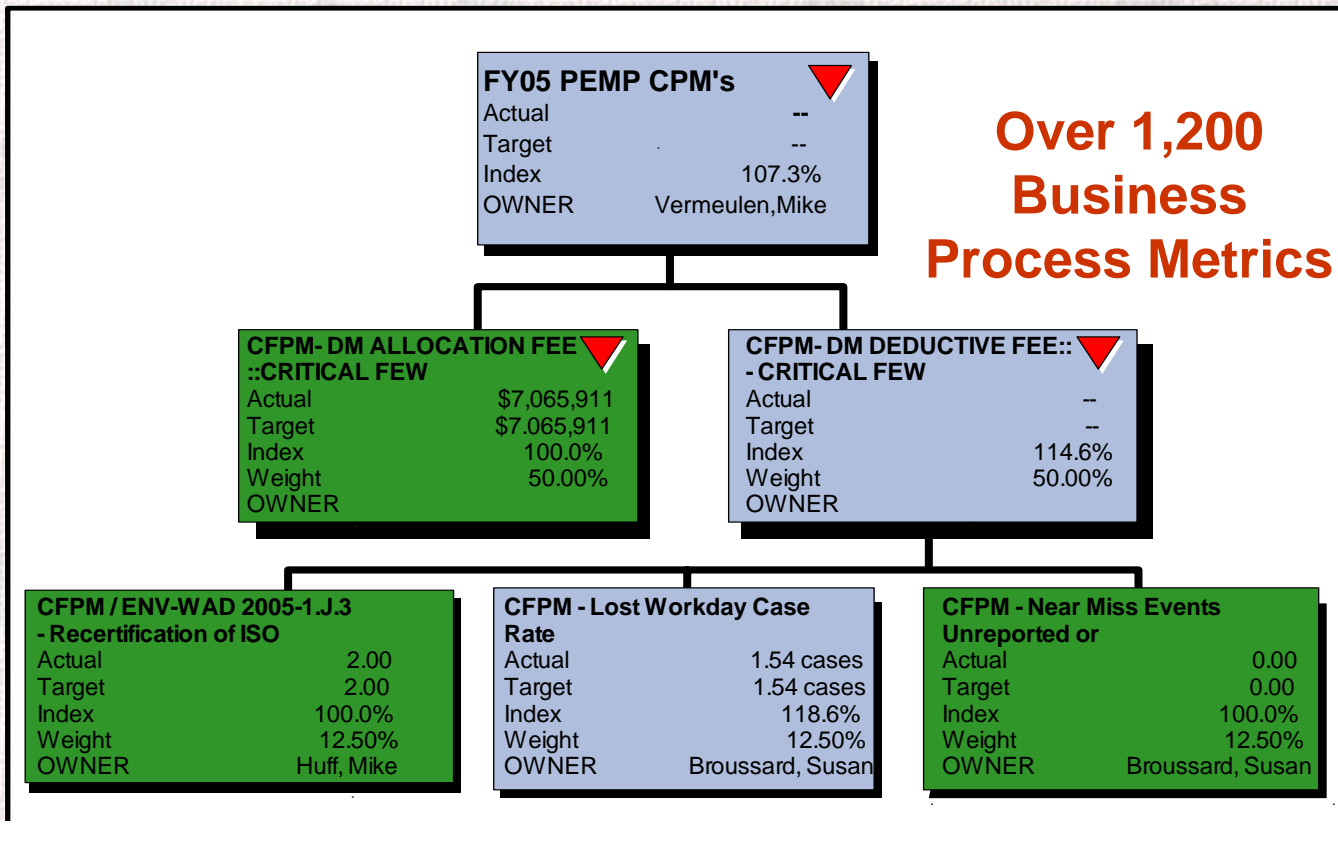
Key Support Processes

- Leadership Development
- Strategic and Action Planning
- Performance Improvement
- Project Control
- Contracts and Procurement
- Quality Assurance
- Inventory Management
- Crude Oil Accountability

**Process Capability C_{pk}
linked to Strategic Planning
Balanced Scorecard**



Performance Metrics



Management by Fact



Albert Einstein Quote – Applicable to Changing Culture

**“We cannot solve the problems
that we have created with the
same thinking that created them.”**



**Lean
Thinking**

**Six
Sigma**



Conclusion

- DynMcDermott
- The Customer - U.S. Department of Energy
- The Partnership
- The Baldrige Performance Excellence Model
- Leadership, Strategic Planning, Systems, Processes and Performance Improvement
- **Lean & Six Sigma, the Knowledge Worker**

Questions?

