Strategic Focus on Workers, the Public and the Environment:
*DynMcDermott Petroleum Operations Company*
In 1973, the Organization of Arab Petroleum Exporting Countries (OAPEC) placed an embargo on crude oil sales to the US and other nations. OAPEC also reduced overall crude oil production levels. As a result of this embargo and the reduced levels of oil output, the price of crude oil rose dramatically in 1973 and 1974.

In response, a number of non-OAPEC countries created the International Energy Agency (IEA) to determine appropriate responses to energy crises, one of which was the creation of strategic reserves of crude oil. Nations participating in the IEA commit to maintaining emergency petroleum reserves, reducing the demand for petroleum when emergencies arise, and sharing oil stocks and reserves among participants to help spread shortages among member states.

The United States Congress, mindful of U.S. post-embargo experiences, authorized the SPR in the Energy Policy and Conservation Act of 1975 (EPCA, P.L. 94-163) to prevent repeated economic dislocation and strategic concerns caused by an oil embargo. For this reason, the SPR’s focus is on mitigating supply chain disruptions to the flow of oil.
Between 1988 and 2008 U.S. production declined from 63% to 32% of daily consumption. As you can see on this chart, domestic petroleum consumption has outpaced domestic petroleum production.
The U.S Strategic Petroleum Reserve consists of 4 underground storage facilities (Bryan Mound, Big Hill, West Hackberry, and Bayou Choctaw), a warehousing operation (Stennis), and the headquarters in New Orleans. Storage capacity was created in naturally occurring salt dome deposits (diapirs) along the Louisiana and Texas Gulf Coast, which also provided good access to pipeline distribution systems and refining centers.
Here you can see a graphic cut-away of an SPR storage facility showing the surface features, underground storage caverns, the containing geological formation, and the connection to the surface. Also pictured are the cavern configuration during the creation process (leaching development) when fresh water is pumped in to dissolve the salt into a brine solution that is displaced out, and the cavern configuration during distribution of crude oil (drawdown) with stored crude oil displaced by pumping fresh water in.
The DOE determined that a GOCO approach was appropriate for the management and operation of the SPR from its inception. This approach allows both government and the private sector to focus on those areas for which each is best suited. The government focuses on defining program mission areas in alignment with policy, including desired mission implementation outcomes, and provides general program oversight. The private sector focuses on mission implementation using best business practices, resulting in improved performance at a lower overall cost.

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**GOICO Environment**

- **Government Owned:**
  - Owns physical assets
  - Defines program mission
- **Contractor Operated:**
  - Provides employees/expertise
  - Day to day management and operation
- **DM contract:** performance based fee for M&O service
  - ESH performance affects ~one-third of fee
  - All fee at risk under “Killer Clause”

Background: GOCO
DynMcDermott Petroleum Operations Company was formed in the early 1990’s as a wholly-owned, subsidiary joint venture between Computer Sciences Corporation (formerly DynCorp), BWXT Federal Services, Inc., Jacobs Engineering Group, and International-Matex Tank Terminals Petroleum Management. DynMcDermott was created for one purpose - to successfully manage and operate the United States SPR as the DOE reopened competitive bidding for the contract in 1992. DynMcDermott received its first contract to operate the SPR in 1993 and has managed the SPR continuously since then, with a second contract awarded in 2003. The current contract runs through 2008, with a renewal option (that was exercised) through 2013.
An excellent business system starts with a clear vision of what is going to be done. DynMcDermott developed and utilizes this vision as a key component of its strategic planning process. Note that safety and environmental responsibility are key and prominent to this vision, and represent core values to the DynMcDermott business planning process.
DynMcDermott's corporate headquarters and project management organization are located in New Orleans. Four storage facilities (2 in Texas and 2 in Louisiana) are located west of New Orleans, and the warehousing facility is located east of New Orleans in Mississippi.

In 1992, DynMcDermott identified 3 key DOE concerns that needed to be addressed by any successful bidder for the SPR contract:

1. A move to a new operating contractor should in no way compromise the operational readiness of the SPR,
2. This move should provide not only a continuation of the status quo, but actually improve management effectiveness and cost efficiency – especially in light of anticipated Congressional budget cuts, and
3. The complacency of the organizational culture at the SPR should be addressed - employees and managers needed to proactively seek operating improvements.
The previous Management and Operating (M&O) contractor averaged 69 reportable events per year over its 8 year tenure. This was an improvement over the 120 reportable events per year averaged by the 2 previous contractors who were described as Operating and Maintenance (O&M) contractors. The M&O contractor was able to draw attention to performance measured as reportable events by tracking and publishing the metrics, providing some refocusing of attention. But this raises the question, is 69 reportable events (43% reduction) good enough? Characteristics of that M&O contractor are noted on the slide.
DynMcDermott identified 3 key DOE concerns that needed to be addressed by any successful bidder for the SPR contract:

1. A new operating contractor should not compromise operational readiness of the SPR,
2. Continue the status quo, plus improve management effectiveness and cost efficiency, and
3. Address complacency of the existing culture with employees and managers proactively seeking operating improvements.

The first concern was addressed via the joint venture able to draw upon the expertise in petroleum industry “know-how” possessed by its parent companies, with a detailed plan to retain certain incumbent BPS managers, professionals and employees.

The second and third concerns were addressed through the culture of employee involvement and empowerment inherited from its parent corporations. DynMcDermott’s commitment to positive cultural change was key to both winning the SPR contract and sustaining long-term success, including:

1. An improved environmental, safety and health management program,
2. A new focus on continuous quality improvement,
3. An internal performance “self-assessment” program,
4. An improved employee recognition and reward system, and
5. An improved employee training and development program.
DynMcDermott introduced the concept of Responsibility, Accountability, and Authority (RAA) to management and operation of the SPR. RAA is assigned at the lowest level (closest to the work) in the organization practical. It is assigned as a suite, in that if you are responsible, you are given the authority to manage the process and held accountable for the results. This includes both specific ESH activities and general business activities with ESH outcomes.
In order to spur continuous improvement as the organization managed the SPR into the new decade, DynMcDermott leadership developed an organizational purpose with a mission-driven strategy focused on a “systems” model for creating value, effectively operating the organization, and ensuring long-term performance excellence and sustainability. This model is based on the Malcolm Baldrige Criteria for Performance Excellence (CPE), which provides a measurement, analysis, and knowledge management framework for a leadership-driven performance management system.
This figure is a two dimensional view of the DynMcDermott core processes. In the center of the figure is the “Mission” – the Drawdown and Fill of the SPR. Moving outward are the “Processes.” The Process area contains value creation processes such as fluid movement, oil accountability, maintenance, security, recruiting, retention, and training. At the core of this approach is the Plan-Do-Study-Act (PDSA) cycle, also known as the Deming Cycle, widely seen as a basic attribute of high-performing organizations.
This figure shows the addition of another level or region to DynMcDermott’s core processes, depicting organizational structures titled “Functions,” as identified in the traditional organizational chart. The functions of an organization are recognizable and are usually mirrored by academic subjects taught to reinforce the functional view (i.e. accounting, finance and marketing). Subjects like safety, health and the environment are not easily understood by the organization because they are cross-functional and more interdisciplinary in nature, focusing on systems and behaviors.
This figure links each function to a value creation process or “Adaptive System” in the outermost region of the diagram. Although each function has a multitude of processes, most are supportive of the value creation or core processes to the Mission. Likewise, each function is responsible for the creation and management of effective adaptive systems that affect the entire organization. For example, the Environment, Safety & Health function, with the support of leadership, created the Integrated Safety Management System, the ISO 14001 Environmental Management System, the EPA Performance Track System and the OSHA VPP Health & Safety System for the protection of the worker, the public, and the environment.

Beyond the concentric circles are concepts critical to a high-performing organization. The arrows on the boundaries of the concentric circles indicate tension and resistance to change. As circumstances change, the concentric circles may rotate past each other facilitating dynamic re-alignment.
In 2000 DynMcDermott introduced full integration of its ESH processes within its business systems. This allowed seamless and sustained implementation of structured management systems within the accepted business processes rather than on top of them. It made the ESH processes comfortable for the organization to embrace, it minimized cost of implementation, and it infused ESH into each new project and process going forward. By integrating ESH it became the way of doing business, not a cost of business, and it became more sustainable.
Focus on the Worker

- Work environment
  - New Orleans – office
  - Stennis – warehousing
  - Sites – 4 petroleum operations with some office
  - Personal safety – petrochemicals, weather (hurricanes) & wildlife

- Workers
  - From local communities
  - 48 years old
  - 14+ years on the job
  - In high demand

The work environment is varied, ranging from office work of relatively low hazard to field operations and maintenance with high levels of both industrial and natural hazards. Many workers are of local origin and have been employed by DynMcDermott for a long period of time, but local increases demand by allied industries for such skilled workers has created a high demand for these workers increasing turnover.
DynMcDermott has worked at engaging the worker in ESH initiatives (as well as other business initiatives). Workers are viewed as resources with intimate knowledge of the fundamental technical and business processes. High value can be obtained by leveraging such knowledge and expertise. We apply for awards to benchmark our processes and initiatives and to demonstrate to our employees just how good they are. By benchmarking against the best we validate our self-assessments and gain critical feedback for use in continuing improvement.
To be truly successful management must operate in a partnership with workers. As opportunities and initiatives occur, management commits the resources necessary to make it happen. Those resources must be adequate in nature and quantity. Workers are involved in that they apply those resources to the initiative creating results. As results occur management becomes involved in reviewing and analyzing those results to determine the next steps in sustaining and improving upon success. Having seen the payback for their efforts (their involvement) workers become more committed to this and related initiatives going forward. Successful initiatives are team efforts.
It’s great to analyze and talk about processes, teamwork, and initiatives. But doing is believing. Involvement of all affected parties in the process creates a culture of innovation and trust. This attitude becomes apparent to others outside of the organization, such as customers. But in order to really walk the talk, you need to do so publically. Public commitments, with follow-up reporting add underscore sustained commitment. And then independent validation provides credibility to results.
Finding ways to do business with locally owned, small, and disadvantaged companies benefits not only the local community, but also society in general. The local public (including workers and their families) benefits as “home town” entrepreneurs succeed, while the larger society benefits when small businesses and minority entrepreneurs succeed, providing valuable role models in these communities. DynMcDermott’s performance over the past several years in this area has been impressive, meeting or exceeding its aggressive goals in five out of the past seven years. And as these small businesses understand how to effectively incorporate ESH in their business processes while working for DynMcDermott, they are likely to do so while working for others as the way they do business.
Educationally, DynMcDermott has supported the Louisiana National Guard’s Youth Challenge program, which was designed to improve the lives of at-risk youth. This program was recognized in 2004 as the best such program in the nation. In New Orleans, DynMcDermott has partnered with DOE employees since 1993 as the corporate sponsor for DOE’s annual high school Science Bowl competition. DynMcDermott mentors various schools providing special event activities ranging from Earth Day to Fire Protection Week projects. DynMcDermott also engages employees in learning projects such as vehicle safety inspections (tire pressure checks) and vehicle efficiency (tail pipe) competitions.
DynMcDermott's environmental management system is based on the ISO 14001 standard and is fully integrated with strategic planning, implementation, and evaluation. ISO 14001 forms a basis for establishing performance standards, defining requirements against environmental aspects that drive budget and resource allocation decisions, and provides full accountability for all processes and outcomes.

DynMcDermott's Environmental Advisory Committee (EAC) was established to help anticipate – rather than merely react to – public concerns by engaging members of the surrounding communities and involving them in the SPR decision-making process. The EAC is an external group of scientists, technical experts, and community representatives that provide independent assessments and advice on DynMcDermott’s environmental and emergency management efforts. Members are briefed on current and potential program issues at quarterly meetings, and as warranted, members or outside experts also present pertinent information to the committee. EAC members share this information among themselves and their communities, providing feedback to DynMcDermott.
Compliance is often thought of as a target that organizations should try to achieve. But statistically one might expect a normal distribution around a target, achieving it just half the time, and failing to do so the other half of the time.
DynMcDermott (and other ESH leaders) use their compliance resources to go beyond compliance. While reaching beyond compliance may likewise result in a distribution with failures in achieving a target, by the target being beyond (rather than at) compliance, those failures, while not desirable, remain in the compliant range of performance, benefiting the company by avoiding or minimizing down-side compliance risk (fines and penalties).
Sustainable systems are discussed in the context of many versions of the triple bottom line in terms of socio-economic responsibility and goals. DynMcDermott uses a three-E model where employees and the environment (ESH) combine as the social aspect with the economics of sustaining a business. And of course outcomes matter, so results aligned with each of the three E’s are now discussed.
DynMcDermott uses an employee based behavioral safety program to create and sustain a culture of safe behaviors. Key to that program is peer-to-peer observation for at-risk behaviors and no-fault discussion of observed at-risk behaviors. The rate of observations, while somewhat noisy over time, has steadily increased, while over the same period, the total recordable case rate (TRC – a measure of accidents) has steadily declined.
The grey background indicates a 3-year baseline of in excess of 30 recordable injuries per year as the previous M&O contractor’s safety record. The chart shows steady improvement in those recordable injury rates throughout DynMcDermott’s tenure as the M&O contractor on the SPR.
The chart shows that throughout the previous M&O contract the contractor generally had 30 to 40 reportable environmental events (spills of product and permit noncompliances) per year, with an improvement noted in 1992 and 1993. DynMcDermott came on board and drove the number of reportable environmental events to zero, or near zero. This is largely attributed to transitioning from a climate where the environmental department is responsible for environmental results to environmental performance being everyone’s business.
Disposal of waste products presents a risk to the public and environment. Wastes are hauled along public highways to disposal facilities where the long-term fate of those products may be uncertain. DynMcDermott has successfully driven down the generation of its wastes through a series of initiatives designed to manage the waste potential of products coming in as well as the processes utilized. In addition to minimizing waste, DynMcDermott has succeeded in minimizing the cost of waste disposal freeing that resource for more productive purposes.
The number one reason to eliminate injuries is protect our workers well being – a moral obligation. This chart is presented to illustrate that there is a less significant but collateral economic benefit to a safe and healthy work place. When considering the improvements in DynMcDermott’s injury rates since 1993, relative to previous rates, over $3.4 million dollars in savings, in reduced medical costs and time off the job has been saved, a non-trivial number for a company of about 500 employees.
DynMcDermott's Environmental Management System (EMS) has paid dividends on many fronts. Since it’s implementation in 1999, in savings from reduced waste generation and cleanup from spills (2 significant aspects of DynMcDermott’s operation), over $5.1 million in environmental savings have accumulated. The cumulative cost of the EMS over that same period has been less that $350 thousand, a substantial return on investment by any measure.
A common misperception is that as an organization focuses on ESH performance, productivity suffers. This chart shows that DynMcDermott’s productivity has nearly tripled over its tenure with barrels of oil stored and managed increasing from 480,000 per employee to 1,350,000 per employee. Over the same period DynMcDermott has improved ESH performance as measured by a 90%+ reduction in recordable incidents (injuries, releases to the environment, and permit violations). This performance improvement happened because of positive and cumulative steps taken over time, beginning with carefully analyzing hazards, and placing responsibility, accountability and authority for mitigating and safely working with those hazards with employees closest to the job. Next employees were empowered through peer-to-peer, no-fault behavior improvement programs, while environmental performance was benchmarked. DynMcDermott then sought to validate it’s performance through third-party organizations and programs gaining valuable feedback in continuing ESH improvement which it used to further improve. Recently initial site visit feedback reports from Robert W. Campbell ESH and Malcolm Baldrige business quality site visits were leveraged in performance improvement with DynMcDermott becoming the first and only company to have succeeded in subsequent applications to win both awards – a testament to ESH and business excellence.
With productivity up 180% and accident rates down 79% over the course of the contract, an annual rate of return of 183% on the Environmental Management System since 1999 and a third of the earned fee attributed to this ESH performance it is hard to argue that ESH is not a key and contributing business process. Plus the intangible of ESH leadership as an indicator of a well managed organization is of great value.
2005 provided a test like no other of the leadership and mettle of DynMcDermott. Two of the most powerful storms to ever strike the United States struck the Louisiana and Texas Gulf coast within less than a month of each other. Five of the six facilities were severely affected. And while these facilities were affected, they were called upon to perform their core mission – to provide crude oil to the nation in the face of the energy emergency created by these storms.
Most DynMcDermott employees lived in the swaths of destruction created by these two storms. While most evacuated, some were unable to even return to their homes to assess damage for a month or more.
The damage caused by these storms to oil production in the Gulf of Mexico was unprecedented, and created a national energy emergency. The core mission of the SPR and DynMcDermott is to respond to such emergencies by delivering large quantities of crude oil into the petroleum markets. Despite circumstances, this mission was accomplished.
Not only did employees take care of their families and their safety, DynMcDermott lived up to its obligation and quickly assembled an incident command function that found all employees, arranged for housing and resources, created workplaces, and brought in key individuals in order to carry out the mission of distributing crude oil. Most astounding is that in this crises situation where all was in disarray, the evacuation, re-entry, and recovery, as well as accomplishment of the distribution of crude oil under stressful circumstances was accomplished free of injuries and environmental incidents.
In conclusion...

High Performing Companies

- Empower employees
- Integrate ESH with all other facets of business
- Structure their ESH management system
- Continually evolve and innovate
- Recognize ESH as value-added
- Expect to perform well beyond baseline requirements

In DynMcDermott’s experience, these are the characteristics of high performing companies.
For more information:

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