

## Governing Energy

### Don't Nuke It!

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Over the past several years many pundits, including this commentator have warmly supported the use of good practices from other industry sectors, including the nuclear power generation segment. A complex and highly regulated sector it would seem to have much to teach deepwater drilling operations as this sector's economic actors implement Safety and Environmental Management Systems (SEMS).

However, in several editions of this blog we have argued that sector good practices many not linearly translate across sectors. While organizational learning can come from a variety of sources, due diligence must be performed to determine the level of correlation and applicability to one's company.

The nuclear power generation sector is high profile, very regulated and demands a very high level of performance 24/7. It would seem to be a very good place to look emulate. It might be but with a few notable exceptions.

The concept of High Reliability Management (HRM) is receiving new scrutiny in light of major global incidents that are exposing critical infrastructure at the societal *impact* level. The concept of High Reliability Organizations is not new and has been broached in an earlier edition of this blog. Academic research on this business model dates to at least 1987.

In light of the increasingly complex nature of offshore drilling, it may be time to revisit this construct and the lessons learned by other sectors. Moreover, we will challenge direct comparisons and posit adjustments that may more appropriate for a High Reliability Drilling Operation (HRDO).

In their book, the authors assess the Diablo Canyon nuclear power plant in California and compare it to a generic HRM process. In the following table, we use their tradition HRO as it relates to Diablo Canyon as part of a comparative analysis with HRDO.

*Disclaimer: The Traditional HRO Management features shown in the right column are applicable to a nuclear power plant and is quoted directly (in italics) from the cited source. The left column, High Reliability Management (HRM) for Drilling Operations are adapted from the cited generic table. Finally, HRDO features that differ from nuclear plant operations are in **bold** for the convenience of the reader.*

<b>HRM for Drilling Operations</b>	<b>Traditional HRO Management<sup>i</sup></b>
High technical competence	<i>High technical competence</i>
<b>Constant short-term search for improvement across multiple phases of the drilling process</b>	<i>Constant search for improvement</i>
<b>Often hazard-driven adaptation to ensure safety</b>	<i>Hazard-driven adaption to ensure safety</i>
<b>Often highly focused and transitory complex activities provided by supply chain partners</b>	<i>Often highly complex activities</i>
<b>Reliability is non-fungible in real time, except when individual service process reliability jeopardizes well completion reliability</b>	<i>Reliability is non-fungible</i>
<b>Real time drilling operations requires improvisation and experimentation</b>	<i>Limitations on trial and error learning</i>
<b>Operations outside of analysis</b>	<i>Operation within anticipatory analysis</i>
<b>Flexible authority within the drilling operations and across the organization</b>	<i>Flexible authority patterns within HRO</i>
<b>Equifinality driven by dynamic Conditions</b>	<i>Positive, design-based redundancy to ensure stability of inputs and outputs</i>
<b>High input and low output variance requires high drilling process variance</b>	<i>Low input, process, and output variance</i>

This is too broad a subject to be adequately covered in the blogging format. This brief high level analysis is only meant as a cautionary tale as the industry seeks to learn and adopt “good practices” from others.

Business models and academic constructs must be carefully considered for relevance and adopted only after careful thoughtful review. This is true not only for cross-sector good practices; inter-segment good practices must be subjected to the same scrutiny as well.

### **What is your organization’s due diligence process for adopting “good practices”?**

Readers interested in learning more about High Reliability Management and its use in the energy sector are invited to contact the author.

## About the Author

Dr. [Scott M. Shemwell](#) has over 30 years technical and executive management experience primarily in the energy sector. He is the author of two books and has written extensively about the field of operations management. Shemwell is the Managing Director of The Rapid Response Institute, a firm that focuses on providing its customers with solutions enabling operations excellence and regulatory compliance management.

## End Notes

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<sup>i</sup> Roe, Emery and Schulman, Paul R. (2008). High Reliability Management: Operating on the Edge. California: Stanford Business Books. p. 61.