



# Recommendations Regarding the Institutional Governance of Offshore Oil and Gas Development

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This section of the report provides preliminary recommendations regarding the legal and regulatory framework for preventing future major accidents in oil and gas developments on the Outer Continental Shelf (OCS).<sup>1</sup>

## 1. Background

The management and regulation of oil and gas development on the OCS is mainly governed by the Outer Continental Shelf Lands Act (OCSLA)<sup>2</sup> and administered by the Secretary of the Interior through the Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE).<sup>3</sup> In developing offshore oil and gas resources it is the declared Congressional policy that:

*“the Outer Continental Shelf is a vital national resource ...which should be made available for expeditions and orderly development ...”*<sup>4</sup> and, in particular, shall be conducted *“...subject to environmental safeguards...”*<sup>5</sup> and *“... in a safe manner by well-trained personnel using technology, precautions and techniques sufficient to prevent or minimize the likelihood of blowouts, loss of well control, fires, spillages, physical obstructions to other users of the waters ... which may cause damage to the environment or to property, or endanger life or health.”*<sup>6</sup>

In addition to OCSLA and its implementing regulations,<sup>7</sup> offshore oil and gas development is further regulated by several other federal and state laws, executive orders, and case law.

Furthermore, a multiplicity of federal and state agencies, as well as non-governmental technical and industrial associations, are implicated in the oversight, regulation, and quality and safety management of the subject activities.

In general terms, OCSLA establishes a four-stage process for the development of oil and gas leases:

- a) The development of a Five-Year Plan by MMS/BOEMRE which creates a schedule of proposed lease sales, providing the timing, size, and location for leasing activities in the plan area;<sup>8</sup>

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<sup>1</sup> Issues relative to the adequacy of the legal and regulatory framework for oil spill response will be addressed in the environmental section.

<sup>2</sup> Outer Continental Shelf Lands Act, Pub. L. 83-212, ch. 345, 67 Stat. 462 (1953), codified at 43 U.S.C. §§ 1331 *et seq.*

<sup>3</sup> Prior to June 18, 2010, the federal agency charged with the administration of OCS mineral development was the U.S. Minerals Management Service (MMS) On June 18, 2010, the Secretary of the Interior issued Order No. 3302 changing the name of the MMS to (BOEMRE). Section 3(c) of the Order provides that BOEMRE shall exercise all authorities previously vested in the MMS. The Secretary of the Interior, U.S. Department of the Interior: Order No. 3302. June 18, 2010. This report will refer to MMS/BOEMRE to capture actions before and after the reorganization.

<sup>4</sup> 43 U.S.C. § 1332(3).

<sup>5</sup> 43 U.S.C. § 1332(3).

<sup>6</sup> 43 U.S.C. § 1332(6).

<sup>7</sup> 30 CFR 250 *et seq.*: Oil and Gas and Sulphur Operations in the Outer Continental Shelf.

<sup>8</sup> 43 U.S.C. § 1344.

- b) The individual lease sale consultation process, which provides adjacent states and the public an opportunity to review each proposed lease sale. This stage culminates in the competitive bidding process and the sale of a leases;<sup>9</sup>
- c) Submission to and approval by MMS/BOEMRE of exploration plans (EPs) that include detailed descriptions of the exploration activities.<sup>10</sup> Once the EP has been approved on the regional level, a further Application for a Permit to Drill (APD) needs to be reviewed and approved.
- d) Submission to and approval by MMS/BOEMRE of development and production plans (DDPs) that include detailed descriptions of the development and production activities.<sup>11</sup> Once the DDP has been approved on the regional level, a further Application for a Permit to Drill (APD) needs to be reviewed and approved.

OCSLA, the National Environmental Policy Act (NEPA),<sup>12</sup> as well as several environmental statutes<sup>13</sup> require that MMS/BOEMRE consult at different junctions in this four-step process with outside agencies such as the Environmental Protection Agency (EPA), the National Oceanic and Atmospheric Administration (NOAA), the Fish and Wildlife Service (FWS), and the National Marine Fisheries Service (NMFS). Furthermore, consultation with, and approval of proposed actions by affected states is required under the Coastal Zone Management Act (CZMA).<sup>14</sup>

For a number of reasons, the process of interagency consultation has never been fully integrated and, as a result, it has never created a true system of checks and balances that could serve to implement the Congressional prerogative to *prevent damage to the environment or property, or endanger life or health* in the development of offshore oil and gas operations.

As such, the Deepwater Horizon accident was a symptomatic result of a governance system that is ill suited to properly consider—and to inform the public about—the dynamic and hazardous nature of current and emerging offshore petroleum developments. The analytical work is still in progress; however, some of the key issues have already been identified and are being widely discussed. These include, inter alia:

- Lack of adequate interagency consultation requirements, or meaningful integration with existing consultation requirements under the National Environmental Policy Act (NEPA), the Coastal Zone Management Act, and other federal laws with respect to the leasing and permitting process;
- Interagency consultation with the relevant outside agencies in most cases does not result in binding mandates for MMS/BOEMRE to implement

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<sup>9</sup> 43 U.S.C. §§ 1337, 1345.

<sup>10</sup> 43 U.S.C. § 1340(b),(c).

<sup>11</sup> 43 U.S.C. § 1351.

<sup>12</sup> 42 U.S.C. § 4332(2)(C).

<sup>13</sup> Consultations or permits are required under statutes including the Clean Air Act § 328, 42 U.S.C. § 7627 (1990), Clean Water Act § 402, 33 U.S.C. § 1342 (1987), Marine Mammals Protection Act § 104, 16 U.S.C. 1374 (2007), Endangered Species Act § 7, 16 U.S.C. § 1536 (2006), Magnuson Stevens Fishery Conservation and Management Act § 305(b), 16 U.S.C. § 1855 (1976). See Freeman, *Structural Options for Improving MMS/BOEM Decision Making on Offshore Drilling*, p. 2. October 13, 2010. <http://www.oilspillcommission.gov/document/jody-freeman-presentation-structural-options-mmsboem>.

<sup>14</sup> Coastal Zone Management Act § 307, 16. U.S.C. § 1456 (1988).

- recommendations of outside agencies in the planning of offshore oil and gas developments;
- The four-stage development process under OCSLA allows for a “tiering” of NEPA analysis that is counterintuitive: the findings in an environmental impact statement (EIS) for a five year plan that covers a large area for lease sales over an extended time period of time can be implemented by reference to subsequent planning steps, a process that has de facto resulted in the routine granting of categorical exclusions for the production of environmental impact statements or environmental assessments (EA) on the micro-level of operations, such as exploration and production plans. In other words, detailed analysis is undertaken on the macro level where specific conditions cannot be anticipated, and on the micro-level, where assessment of specific conditions is necessary, exemptions for detailed analysis are being granted;
  - The combined OCSLA-NEPA review process only requires MMS/BOEMRE to fully assess and disclose potential environmental impacts, but not to alter their plans in light of that disclosure. NEPA itself does not require mitigation even when environmental impacts are expected to be severe, nor does it require MMS/BOEMRE to provide a “worst case” analysis.<sup>15</sup> Worst case planning would have revealed that there currently exist no practical means to intervene with a deep-water well blowout other than the “static kill” option via a relief well.
  - Inadequate prescriptive regulatory framework relative to the technical and safety elements for exploration and development, and lack of specific performance objectives;
  - Apparent conflict of interest issues raised by lobbying activities of industrial standard setting organizations (e.g., American Petroleum Institute) whose standards and recommended practices are often adopted by regulators;
  - Application of an inspection system using compliance checklists but neglecting the quality of the operator’s overall safety management system and involving a limited number of inspectors with questionable qualifications;
  - A regulatory regime in which the burden of accident prevention is borne by the regulator, not the operator.

## 2. Recommendations

Research on governance of complex technical endeavors indicates that objective-setting or performance-based regulation that is based on research, collaboration, and adaptation of industry operating experience can produce superior safety performance results as compared to an exclusively prescriptive command and control regulatory approach.<sup>16</sup> Experience in the U.S. commercial nuclear power industry demonstrates the effectiveness of such a model. Review of regulatory and management approaches in the United Kingdom and Norway offshore petroleum industries find that a number of objective- or performance-based approaches are in use, or in various stages of development in successful offshore petroleum operations.

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<sup>15</sup> See Freeman, *Structural Options for Improving MMS/BOEM Decision Making on Offshore Drilling*, p. 2. October 13, 2010. <http://www.oilspillcommission.gov/document/jody-freeman-presentation-structural-options-mmsboem>.

<sup>16</sup> W. E. Carnes, *Highly Reliable Governance of Complex Socio-Technical Systems*, DHGS, Center For Catastrophic Risk Management, University of California, Berkeley, 2010.

However, very recent experience and analysis of the blowout of the Montara Wellhead Platform in Australia indicates that while objective-based regulation has been a desirable development overall, it demands that an active regulatory agency exists that is able to properly validate the implementation of an objective-based regulatory approach.

## General Elements

Recommended core elements gleaned from the nuclear industry, the commercial aviation industry, and high performing petroleum industry for error prevention and management programs designed to minimize and ultimately eliminate managerial inadequacies and human factors in accidents include the following elements:<sup>17</sup>

- A progressive and adaptive key regulatory agency that is directly and adequately funded.
- Adaption of a systems safety model clearly establishing that system safety is necessary to prevent major accidents and provide worker protection is essential and it should be mandatory to calibrate system safety models from a ‘real life’ (experiential) perspective.
- Development of safety cases, including detailed drilling, containment, and spill response plans, as done in the U.K.
- Risk-informed regulation: a combination of traditional engineering requirements for technical systems and components informed by probabilistic risk assessment to focus on safety critical systems and components, combined with performance regulations for management and organizational systems and processes.
- Intense training and qualification programs for operating personnel and inspectors.
- Operating experience monitoring together with onsite inspectors.
- Meaningful integration of the key regulatory agency with other relevant technical and environmental agencies.
- An independent organization, jointly established by government and industry, to perform research and evaluation relative to drilling and production operations, such as the formation of an Offshore Safety Institute, as proposed by Secretary Salazar.
- The establishment of operating and training standards which promote excellence.
- An industry-funded accident insurance pool that is dedicated specifically to disaster prevention and response.
- Sufficient funding for research on petroleum industry operation and management excellence.
- Research and investment in developing new safer and cheaper technologies.
- Safety equipment standardization and qualification.
- Industry-wide emergency response capability.
- Industry-wide reporting system with “whistle blower” protection.

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<sup>17</sup> W. E. Carnes, *Highly Reliable Governance of Complex Socio-Technical Systems*, DHGS, Center for Catastrophic Risk Management, University of California, Berkeley, 2010.

## **Specific Recommendations**

In addition to these general elements, the following more particular recommendations with respect to the development of the legal and regulatory framework are made:

- Development of an integrated regulatory system under OCSLA and relevant environmental laws that creates real leverage for outside agency recommendations, *i.e.*, recommendations that need to be addressed or even implemented by BOEMRE.
- Existing consultation requirements between BOEMRE as the action agency and outside agencies need to be reviewed. Since outside agencies, much like BOEMRE itself, often lack the financial capabilities to properly comment on the environmental impacts of proposed activities, independent third party institutions can be tasked with performing analysis, and this analysis should be paid for by either the lead agency or the industry that is seeking permits.
- Compliance by BOEMRE and permit applicants pursuant to the National Environmental Policy Act must be based on context-specific and activity-specific information (not boilerplate). Ultra-Deepwater drilling activities need to be distinguished from shallow water drilling activities, other offshore development activities, and proposed development activities in the arctic, all of which pose different reasonably foreseeable impacts of routine operations, accidents, and other non-routine incidents on the human and natural environments. Unless the technological differences that apply to operations in these differing environments are clearly understood and described, meaningful environmental impact statements pursuant to NEPA cannot be formulated.
- As long as impacts of activities on the human and natural environments remain unknown, *e.g.*, the use of dispersants, the magical ‘disappearance’ of large amounts of oil, or the effects of deep-water methane hydrates on aquatic life, the utilization of “Findings of No Significant Impact” (FONSI) or “Categorical Exclusions” (Cat-Ex) for activities should be minimized.
- Development and implementation of “worst case” analysis for activities that have high impact implications (human, environmental, financial). Worst-case analysis needs to reflect the highest standard of technical expertise and the plausible concerns of others whose interests may be impacted (*i.e.*, ‘stakeholders’). In order for not having to ‘re-legislate’ NEPA, a process must be devised under the enabling legislations, most notably the Outer Continental Shelf Lands Act and the Oil Pollution Act, to formulate plausible worst case scenarios, and to determine whether drilling permits will be granted with special conditions for minimizing the likelihood of the worst case and for minimizing its impacts if it does occur.
- Comprehensive review of the Coastal Zone Management Act (CZMA) and its implementing regulations should be initiated to realize the Congressional intent of a system of checks and balances between the federal government and state governments in reviewing the direct, indirect, and cumulative effects of oil and gas development activities on the Outer Continental Shelf on coastal resources, and their consistency with a state’s Coastal Management Plan, as envisioned by the CZMA and the Omnibus Budget Reconciliation Act of 1990, Pub. L. No. 101-508, 104 Stat. 1388, Title VI (1990). In this context, the idea of regional

- planning councils should be further developed to allow the local communities to effectively participate in the development and protection of coastal resources.
- Since NEPA is a ‘procedural’ statute only, a review of the Outer Continental Shelf Lands Act and its implementing regulations is necessary to identify the different operating scenarios (deep-water, shallow-water, and arctic), and to formulate essential technical regulations (*i.e.*, standards for pipes, cementing, centralizers, blow-out preventers) for different operations. Such technical regulations will enable the NEPA review to properly correlate activities with reasonably foreseeable impacts.
  - Jurisdiction and responsibilities must be clarified to resolve current uncertainties regarding the regulatory and inspection roles of the Coast Guard, BOEMRE, OSHA and EPA for offshore operations.<sup>18</sup> In particular, a rule needs to be enacted to clarify and coordinate responsibilities at multi-employer work sites and ensure compliance with applicable regulations and procedures by the party holding the permit and its contractors, subcontractors, and service providers.<sup>19</sup> Furthermore, the Crew Resource Management system employed by the commercial aviation industry might be a good example because it responds to the fact that multiple people are working together as teams but had NOT been trained as teams.
  - Priority should be given to resolving current uncertainties regarding regulatory and inspection roles of BOEMRE and the Coast Guard for worker safety and health,<sup>20</sup> and to enactment of a process safety management rule (which includes provisions for management of change), similar to OSHA’s process safety management rule for onshore oil and gas operations.<sup>21</sup>
  - In assuming responsibilities for worker safety and health, BOEMRE should enact workplace safety and health regulations that are integrated with its accident prevention requirements, and not assume that accident prevention requirements alone provide sufficient protection for worker safety.<sup>22</sup> In this regard, BOEMRE should require by rule that a worker safety representative be appointed at each installation to participate in operational decisions and be empowered to suspend operations when the representative believes in good faith that continuation of operations would imminently endanger worker safety. These are key features of proven value in the Norwegian regulatory approach to offshore safety.<sup>23</sup>

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<sup>18</sup> Numerous Memoranda of agreement and Understanding between these agencies over the years have led to many regulatory uncertainties. M. Baram, *Preventing Accidents in Offshore Oil and Gas Operations: the US Approach and Some Contrasting Features of the Norwegian Approach* (September 2010), <http://ssrn.com/abstract=1705812>. Also National Academy of Engineering, *Interim Rpt. on Causes of the Deepwater Horizon Oil Rig Blowout and Ways to Prevent Such Events* (November 16, 2010).

<sup>19</sup> In this regard, OSHA Instruction CPL 02-00-124 should be considered.

<sup>20</sup> M. Baram, note 2 *supra*. Also “Coast Guard Says it Oversees Offshore Oil Rig Safety, Lawmakers Cite Regulatory Disarray”, 40 OSHR 537 (June 24, 2010); and Hearings, Committee on Education and Labor.

<sup>21</sup> OSHA standard at 29 CFR 1910.119.

<sup>22</sup> Numerous studies indicate the value of worker involvement in offshore safety management, e.g., P. Bentley et al, *Development and Implementation of an HSE Management System in Exploration and Production Companies*, Society of Petroleum Engineers (1994).

<sup>23</sup> S. Martorell et al, *Stop in the Name of Safety-The Right of the Safety Representative to Halt Dangerous Work*. In *Safety, Reliability and Risk Analysis* (2009).

- BOEMRE should maintain oversight of the contracts between the permit holder and its contractors and other service providers and their performance under these contracts to ensure that any fee incentives based on reduced time and costs of performance do not compromise the professional quality of the contracted work in ways that would undermine operational safety.<sup>24</sup>
- BOEMRE should secure the cooperation of OMB/OIRA in ensuring that enactment of new regulations it finds necessary for accident prevention are not obstructed by unduly stringent application of cost-benefit analysis.<sup>25</sup>
- BOEMRE should establish an advisory committee on safety culture to give meaning to this concept and provide guidance for its establishment and maintenance within offshore industries. The concept has been loosely used in a judgmental way to summarize why a company experienced an accident. But the safety culture concept has not been clearly defined, nor its ingredients identified, other than that it involves, for example, organizational learning from accidents and near miss incidents, more than regulatory compliance, internal reporting, and lively discourse on safety matters, ethics in decision-making, and leadership which promotes continuous improvement. An interdisciplinary advisory committee could advance the concept and provide guidelines for its implementation and measurement, as is being done in other industrial sectors.<sup>26</sup>
- Repeal of the \$75 million liability cap for economic damages under the Oil Pollution Act. If operations can yield \$10 million per day, a maximum penalty of \$75 million is negligible from an operator's perspective and, accordingly, does not provide the necessary deterrent function of a penalty, even for the "worst case."

## Safety and Environmental Management System (SEMS)

BOEMRE's new SEMS rule marks the first time that a federal agency will directly regulate the structure and core functions of the safety management system of an offshore operator. The SEMS rule mandates operator fulfillment of eleven broadly stated safety management functions (and compliance with other requirements for self-auditing, documentation, and reporting).<sup>27</sup> The rule also explicitly provides that compliance with the functional requirements will involve operator implementation of standards and practices developed by the American Petroleum Institute and other industrial organizations, and for enforcement when operators do not fulfill the designated functions.

This new approach raises several issues that need to be addressed by BOEMRE:<sup>28</sup>

- Given that each company's fulfillment of the functional, performance-based requirements will be based in part on consideration of the special features of its

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<sup>24</sup> For an approach used in the realm of federal contracts, see DFARS 216.405-270: Award fee reduction or denial for jeopardizing the health or safety of Government personnel.

[http://www.acq.osd.mil/dpap/dars/dfars/html/current/216\\_4.htm#216.405-270](http://www.acq.osd.mil/dpap/dars/dfars/html/current/216_4.htm#216.405-270) .

<sup>25</sup> A. Sinden, OMB Regulatory Hit List, Ctr. For Progressive Regulation.

<http://www.progressivereform.org/perspOMB.cfm>.

<sup>26</sup> M. Baram, M. Schoebel, Safety Culture and Behavioral Change at the Workplace, 45 Safety Science 631-636 (2007).

<sup>27</sup> Safety and Environmental Management Systems: Final Rule, 75 Fed. Reg. 199 (October 15, 2010) 63610. et seq.

<sup>28</sup> M. Baram, Self Regulation and Safety Management, Working on Safety Conference (September 7, 2010).

<http://www.wos2010.no/presentations.php>.

operation and thus differ in several respects from what each other company does for compliance, BOEMRE needs to ensure that each company's compliance with SEMS affords equivalent protection for workers and the environment.

- Because the current checklist approach to inspection which involves policing companies for PINC's (potential incidents of non-compliance) by relatively inexperienced inspectors was developed for ensuring compliance with prescriptive technical standards and rules,<sup>29</sup> it is inadequate for evaluating compliance with the broadly-stated functional requirements of the SEMS rule. Therefore, BOEMRE needs to ensure that inspection pursuant to the SEMS rule is conducted by highly qualified personnel who are capable of fully evaluating company efforts to meet the performance-based functional requirements, and capable of offering regulatory guidance when necessary.<sup>30</sup>
- BOEMRE must also ensure that the American Petroleum Institute and other industrial safety standards and recommended practices relied upon by companies for compliance with the SEMS rule are qualitatively sufficient in terms of the technical state of the art, and are not compromised by the economic interests and lobbying activities of the membership of the industrial standard-setting organizations.<sup>31</sup> Because the procedures used by such organizations for developing industrial standards and recommended practices are not transparent nor permit access by non-industrial stakeholders, BOEMRE should also conduct transparent "regulatory forums" in which existing industrial standards and the need for additional industrial standards pertinent to the SEMS rule are discussed with participation by non-industrial stakeholders.<sup>32</sup>

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<sup>29</sup> PINC's at ><http://www.boemre.gov/regcompliance/inspect.htm><.

<sup>30</sup> M. Baram, *Preventing Accidents in Offshore Oil and Gas Operations: the US Approach and Some Contrasting Features of the Norwegian Approach* (September 2010). <http://ssrn.com/abstract=1705812>.

<sup>31</sup> M. Baram, *Id.* Also NAE Rpt., note 3 *supra*.

<sup>32</sup> The Norwegian model for regulatory forums is instructive. <http://www.ptil.no/regulatory-forum/category168.html>.