



Arctic Offshore Oil and Gas Guidelines White Paper No. 2

Environmental Monitoring in the United States and Canada

The Arctic Council¹ endorsed the latest version of the [Arctic Offshore Oil and Gas Guidelines](#) (AOOGG) in April 2009. The AOOGG were prepared by the Protection of the Marine Environment Working Group (PAME) and are “intended to define a set of recommended practices and outline strategic actions for consideration by those responsible for regulation of offshore oil and gas activities” in the Arctic.

As active participants in the Arctic Council, the United States and Canada have the potential to demonstrate model practices for offshore oil and gas development in their neighboring offshore areas of the Western Arctic Ocean, especially as each country reviews its procedures in light of the fatal April 2010 Deepwater Horizon blowout and explosion in the Gulf of Mexico. This paper outlines national laws and regulations existing at the time of the accident to suggest how both countries, as they revisit their procedures, can use the Arctic Council guidelines to more effectively regulate *Environmental Monitoring* in offshore oil and gas development in the Western Arctic.

For a survey of the offshore permitting process in each country, a list of references, and a description of this White Paper Series please refer to the Overview accompanying this White Paper No. 2, also available at www.vermontlaw.edu/energy/news.

¹ The Arctic Council was established in 1996 as a “high level intergovernmental forum” to promote cooperation, coordination and interaction among the Arctic states with significant involvement from Arctic Indigenous communities and other Arctic inhabitants.



I. Environmental Monitoring in the AOOG Guidelines

Environmental Impact Assessment (EIA) and Environmental Monitoring (EM) are related but distinct activities, and the Guidelines discuss them in two separate chapters. This White Paper addresses AOOGG Chapter 4 on Environmental Monitoring, which emphasizes the importance of a comprehensive environmental monitoring program during all phases of oil and gas exploration, development and production.² The Guidelines conclude that EM programs should be established during the development of an EIA, before oil and gas exploration begin (§ 3). This practice will provide a regional baseline against which data collected throughout the project can be compared (§ 3). EM programs should continue throughout the decommissioning and reclamation process (§ 4.1). The “length and breadth” of the monitoring program will be “determined by the scale and duration of offshore oil and gas activities and the immediate or long-term impacts” (§ 4.1). The program should be regional in scope and “conducted so as to distinguish impacts due to oil and gas activities from other relevant sources.” (§ 4.1)

The monitoring program should identify vulnerable species and sensitive life stages (§ 4.1). Monitoring programs should measure the “level of potential pollutants in environmental compartments” and “potential effects [pollutants] might have on living resources” (§ 4.2). The monitoring should consist of “field monitoring,” “laboratory experiments” and “field studies when relevant” (§ 4.2). Monitoring should occur more frequently at the beginning of the program to determine “the main impacts and trends” (§ 4.3). Once the impacts and trends have been defined, then monitoring should be done as frequently as necessary to determine the levels of pollutants and the effects of pollutants on other organisms in the ecosystem (§ 4.3).

The Guidelines provide a list of factors that should be monitored during petroleum activities: the “source of the contaminant, the potential routes of transport (e.g. aqueous, particulate, or air borne) and the potential pathways to bioaccumulation” (§ 4.3). Other possible factors to consider when developing a monitoring program include “wind strength and gustiness; ocean currents; relevant river flow; precipitation; air temperature; ocean temperature; sea ice conditions and movement; water depth; sea surface state; subsurface geology; and other resources affected” (§ 4.3).

Monitoring should be “defined by the regulatory and legal framework of each country” and regulators should consider contracting monitoring to local indigenous populations (§ 4.3). In addition, monitoring should be based on the “best available knowledge” and incorporate public input and independent scientific peer review (§ 3). The results of monitoring programs should be used by all parties involved in the decision-making process and at all phases, including use during compliance audits, on-site regulatory supervision, verification of implementation of environmental strategies and when assessing the adequacy of legislation (§ 4.4).

² The Guidelines discuss EIA in Chapter 3 and outline the EIA processes for Canada and the United States (pp. 83-84), as well as for the Faroe Islands, Greenland, Norway and the Russian Federation, in Appendix D.

II. Environmental Monitoring - United States

United States laws and regulations divide the offshore environmental monitoring process into three phases: (1) pre-lease stage environmental assessment (EA), which occurs before the approval of a project; (2) monitoring throughout the project and (3) monitoring during the decommissioning process. This section will focus on the EM requirements for the first two phases as outlined in the Outer Continental Shelf Lands Act (OCSLA)³ and the Minerals Management Service (MMS) regulations in force in April 2010 when the Deepwater Horizon exploded. At that time, the MMS administered OCSLA, which is the primary relevant act for offshore oil and gas development in the Arctic. As of July 14, 2010, the Department of the Interior (DOI) delegates OCSLA responsibilities to three newly established Interior agencies: the Bureau of Ocean Energy Management, Bureau of Safety and Environmental Enforcement, and Office of Natural Resources Revenue.⁴

Outer Continental Shelf Lands Act

Under OCSLA, the Secretary of the Interior is directed to conduct environmental studies of “any area or region included in any oil and gas lease sale ... to establish information needed for assessment and management of environmental impacts on the human, marine, and coastal environments of the outer Continental Shelf and the coastal areas which may be affected ...” 43 U.S.C.A. § 1346(a)(1). The Secretary determines the extent, type and duration of monitoring that “he deems necessary” to develop a “time-series and data trend” that can be compared to previous studies on environmental quality in the project area. 43 U.S.C.A. § 1346(b). This creates a baseline from which trends in environmental quality in the project area can be monitored and additional experiments can be conducted to identify causes of any changes in environmental quality. 43 U.S.C.A. § 1346(b). The Secretary “may obtain from public sources, or purchase from private sources, any survey, data, report, or other information ... which may be necessary to assist him in preparing any environmental impact statement.” 43 U.S.C.A. § 1344(g). The Secretary may also obtain environmental impact statements (EIS) prepared by other Federal agencies, data from environmental studies or monitoring done by other Federal agencies and any relevant information from State or local governments. 43 U.S.C.A. § 1346(c). The environmental studies must commence no later than six months before a lease sale. 43 U.S.C.A. § 1346(a)(2).

After every three fiscal years, the Secretary must submit to Congress an assessment of the “cumulative effect of activities ... on the human, marine, and coastal environments” for any activity contained in an area or region included in an oil and gas lease for which EM occurs. 43 U.S.C.A. § 1346(e). These reports can draw on information from the monitoring programs the Secretary has asked each lessee to conduct and monitoring done by other Federal agencies, state or local governments, or from any other entity or person. 43 U.S.C.A. § 1346 (c). The type of EM required by OCSLA is site specific and determined at the discretion of the Secretary.

³ Title 43 USC §§ 1331 et seq.; the relevant regulations are Oil and Gas and Sulphur Operations in the Outer Continental Shelf, 30 CFR Part 250.

⁴ DOI Press Release July 14, 2010, at <http://www.doi.gov/news/pressreleases/Salazar-Receives-Implementation-Plan-for-Restructuring-the-Departments-Offshore-Energy-Missions.cfm>. See also DOI Secretarial Order 3302, June 18, 2010.

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OCSLA Regulations

Before establishing the successor agencies to the MMS in July 2010,⁵ the Secretary of the Interior delegated authority to the MMS to regulate offshore oil and gas development under OCSLA. 30 CFR § 250.101. Within MMS, Regional Supervisors (RS) were appointed with the “responsibility and authority for operations or other designated program functions within an MMS region.” 30 CFR § 250.105. The Alaska outer continental shelf (OCS) is the relevant region for the Western Arctic.

Under the OCSLA regulations, proposed activities must comply with the National Environmental Policy Act (NEPA), meaning an EA must be carried out before the activity may begin. If, on the basis of the EA, it is determined the activity will significantly impact the environment then an EIS must accompany exploration plans (EP) and development and production plans (DPP). 30 CFR § 250.227(a), § 250.261(a).⁶ In addition the EP and DPP must include information about the existing and planned monitoring systems that will assess and provide data on the environmental impacts of the activity. 30 CFR § 250.221(a), § 250.252(a). These documents must include additional information and requirements regarding planned monitoring when necessary for consistency with an applicable state program established under the Coastal Zone Management Act (CZMA). 30 CFR § 250.226, § 250.260.

Under the regulations in place at the time of the Deepwater Horizon blowout, after the EP and DPP were deemed submitted by the Regional Supervisor (RS), additional EM could still be required to ensure compliance of the activities with the requirements of the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA). 30 CFR § 250.282. Additional environmental requirements may be prescribed by the Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS), which have independent authority to impose monitoring and reporting requirements under any incidental take authorization under the MMPA or by the RS. The RS develops a timeline for submission of monitoring reports and analyzes and summarizes data collected from the monitoring programs. 30 CFR § 250.282(b). The RS has discretion to determine the scope and content of the additional monitoring programs.

Days before the Deepwater Horizon explosion the Secretary of the Interior had announced a US Geological Survey review of scientific information used for decision-making in the Alaska Arctic OCS (Beaufort and Chukchi Seas) and ordered a gap analysis to determine what research and monitoring might be lacking or require additional focus. The October 1, 2010, completion deadline for the study has been extended.⁷

⁵ See note 4, above.

⁶ See, e.g. United States Department of Interior Minerals Management Service Gulf of Mexico Outer Continental Shelf Region: Information Requirements for Exploration Plans and Development Operations Coordination Documents. <http://www.gomr.mms.gov/homepg/regulate/regs/ntls/2008NTLs/08-g04.pdf>; MMS: Supplemental Information on Submitting the Environmental Impact Analysis, <http://www.gomr.mms.gov/homepg/regulate/environ/eia.html>; MMS: environmental studies for the Alaska OCS Region, <http://www.mms.gov/alaska/ess/index.htm>; MMS: Offshore Energy & Minerals Management, <http://www.mms.gov/eppd/sciences/esp/index.htm>.

⁷ See April 13, 2010, DOI News Release: Secretary Salazar Unveils Arctic Studies Initiative that will Inform Oil and Gas Decisions for Beaufort and Chukchi Seas. http://www.doi.gov/news/pressreleases/2010_04_13_releaseA.cfm.

III. Environmental Monitoring - Canada

In Canada, the laws and regulations divide the environmental process for petroleum activities into two phases: (1) environmental assessment occurring before the approval of a project and (2) monitoring throughout the project. This section begins with the EM requirements as outlined in the Canadian Environmental Protection Act (CEPA) and the Canada Oil and Gas Drilling and Production (COGDP) Regulations. The Canada Oil and Gas Operations Act (COGOA) is the enabling legislation for the latter. Recognizing that additional authority pertains to offshore activities in the Western Canadian Arctic, related EA requirements of the Canadian Environmental Assessment Act (CEAA) as well as the Inuvialuit Final Agreement are discussed briefly as well.⁸

Canadian Environmental Protection Act (CEPA)

Under CEPA, the Minister of the Environment shall “establish and maintain a system for monitoring environmental quality.” S.C. 1999, c. 33, s. 44(1). To do so the Minister may “cooperate with governments, foreign governments and aboriginal people and with any person who has established or proposes to establish any such system.” S.C. 1999, c. 33 s. 44(2)(a). In order to establish a system, the Minister shall research and study “pollution prevention, the nature, transportation, dispersion, effects, control and abatement of pollution, and the effects of pollution on environmental quality, and provide advisory and technical services.” S.C. 1999, c. 33, s. 44(1)(b). The Minister should conduct research and studies relating to “environmental contamination arising from disturbances of ecosystems by human activity” and “detection and damage to ecosystems.”⁹

Canada Oil and Gas Drilling and Production (COGDP) Regulations

The COGDP Regulations require an environmental protection plan (EPP) from all applicants seeking a permit from the National Energy Board (NEB). R.S., 1985 c. (6)(d). The environmental protection plan “shall set out the procedures, practices, resources and monitoring necessary to manage hazards to and protect the environment from the proposed work or activity.” R.S., 1985 c. (9). The plan shall include “a description of the system for monitoring compliance with the discharge limits.” R.S., 1985 c. (9)(j). The discharge limits include discharge streams and “any discharge into the natural environment including any waste material.” R.S., 1985 c. (9)(i). The monitoring system should include “sampling and analytical program to determine if those discharges are within the specified limits.” R.S., 1985 c. (9)(j). The EPP should specify what constitutes monitoring compliance and how to measure EM performance in relationship to the objectives laid out in the environmental protection plan. R.S., 1985 c. (9)(k).

Canadian Environmental Assessment Act (CEAA)

Under CEAA, “an environmental assessment of a project is required before a federal authority” administers

⁸ As the AOOG Guidelines note, “To the east in the Nunavut Settlement Area, Article 12 of the Nunavut Land Claims Agreement outlines the sole environmental assessment process applicable to the area,” AOOGG, 84. This White Paper concentrates on the Western Arctic because the United States and Canada both have jurisdiction there and share a boundary in the Beaufort Sea.

⁹ S.C. 1999, c. 33, 44(1)(c)(i) and (ii); National Energy Board: Environment: questions and answers: <http://www.neb.gc.ca/clf-nsi/rsftyndthnvrnmnt/nvrnmnt/nvrnmntq-eng.html>.

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“federal lands and sells, leases or otherwise disposes of those lands or any interest in those lands ...” including offshore oil and gas exploration. S.C. 1992, c. 37, 5(1)(c). The Governor in Council cannot take any enabling action, including issuing a permit or license, until an EA has occurred. S.C. 1992, c. 37, 5(2)(a). The EA must be “conducted as early as is practicable in the planning stages of the project and before irrevocable decisions are made.” The EA process includes a screening or comprehensive study, a mediation or assessment by a review board and implementation of a follow-up program. S.C. 1992, c. 37, 14.¹⁰ The NEB was intended to act as the review board.¹¹ Factors that should be considered during the EA process includes the effects of the project, measures that would “mitigate any significant adverse environmental effects” and “any other relevant matter.” S.C. 1992, c. 37, 16(1). An environmental study of future effects from possible future projects in a region may be considered if a federal authority participated in the study especially when looking at the cumulative environmental effects “likely to result from the project in combination with other projects or activities that have been or will be carried out” in the region. S.C. 1992, c. 37, 16(3). If the offshore project occurs in the Inuvialuit Settlement Region in the Beaufort Sea, an Environmental Screening and Review process is also required under the Inuvialuit Final Agreement.¹²

Finally, the Guidelines note that, in Canada, “Efforts are underway to design a pilot, multistakeholder regional environmental assessment process for the Beaufort Basin.”¹³ While at this stage these efforts do not deal specifically with EM, the process may eventually provide a foundation for EM programs in the Beaufort Sea.

IV. Observations and Conclusions - Environmental Monitoring

This paper has outlined selected provisions in the Canadian and United States legal frameworks for Environmental Monitoring (EM) during offshore oil and gas exploration, focusing on two phases: (1) the pre-approval assessment phase and (2) the monitoring phase occurring throughout the project. The following comparisons deal with the similarities and differences in the systems and how the AOOGG Guidelines for Environmental Monitoring (Chapter 4) might be integrated across the two systems. This paper dealt only in passing with environmental impact assessment (to which the Guidelines devote a separate chapter 3) as it relates to environmental monitoring.

Pre-approval Assessment Phase

The legal framework in both countries require some type of pre-approval environmental assessment, to determine the extent of the environmental impact each proposed activity might cause. In the United States, the Secretary of Interior determines the extent, type, and duration of the EM, which begins even before the

¹⁰ National Energy Board: Environment- <http://www.neb.gc.ca/clf-nsi/rsftyndthnvrnmnt/nvrnmnt/nvrnmnt-eng.html>, and www.neb-one.gc.ca.

¹¹ National Energy Board: Who We Are & Our Governance- <http://www.neb-one.gc.ca/clf-nsi/rthnb/whwrndrgvrnc/whwrndrgvrnc-eng.html>.

¹² See also note 8, above. The Western Arctic (Inuvialuit) Claims Settlement Act, 1984 S.C., ch. 24 (Can.), available as amended at www.investnwt.com/aboriginal/inuvialuit_final_agreement.pdf. This Act authorized the land claims settlement agreed to in the June 5, 1984 Inuvialuit Final Agreement (IFA), between the Committee for Original Peoples' Entitlement (COPE) and Canada; and The Regulatory Roadmaps Project, Oil and Gas Approvals in the Northwest Territories - Inuvialuit Settlement Region, 2001, A Guide to Regulatory Approval Processes for oil and natural gas exploration and production in the Inuvialuit Settlement Region, June 2001, Part 4.0.

¹³ AOOGG, 84.

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project starts. This creates a baseline from which the information collected from post-approval EM can be compared. In addition, the MMS has required a NEPA environmental impact review for each proposed activity. After an EA is conducted, NEPA only requires that the responsible agency consider the environmental impact of the project and does not require that it choose a particular alternative to the proposed project, although alternatives with less impact must be proposed. The MMS could either reject the proposed action or allow the proposed action to go forward as is or with modifications and/or with mitigations mechanisms and stipulations. After an EIS is completed, the Secretary of Interior determines whether or not to allow the proposed action to proceed. In Canada, however, after an environmental assessment of a project is completed, the authority conducting the assessment can recommend that a project permit be denied if the project will have “significant adverse environment or socio-economic effects.” Although simply a recommendation, this step appears to involve more than the balancing test required under NEPA.

Monitoring throughout the Project

In both the United States and Canada, the project sponsor must design an EM program before approval of an individual project. The COGDP Regulations provide specific categories of information to be contained in individual environmental protection plans for each proposed offshore project. While not offshore specific, the CEPA also lays out categories that the Canadian Minister of the Environment should consider while developing any EM system, such as “pollution prevention, the nature, transportation, dispersion, effects, control and abatement of pollution.” S.C. 1999, c. 33, 44(1)(b). By contrast, the U.S. Secretary of the Interior is not given such broad areas to consider and has full discretion in developing the monitoring program requirements, which activity is in turn delegated to Regional Supervisors. Before the Deepwater Horizon explosion, MMS could require EM programs to assess compliance with the ESA, the MMPA and any factors the Regional Supervisor might require. The Regional Supervisor for the MMS, and presumably for its successor agencies, is tasked with developing a timeline for submitting EM reports to the responsible agency and analyzing and summarizing the data. Under OCSLA, the Secretary of the Interior must submit a report to Congress every three fiscal years summarizing the data collected under the monitoring programs.

Under the 2009 Canadian COGDP Regulations, which adopted a systems management and goals-oriented approach to regulation, an environmental protection plan (EPP) for offshore oil and gas development and a plan for compliance must be developed for each project authorized. As quoted in Part II, above, each project’s EPP must identify the “procedures, practices, resources and monitoring necessary to ... protect the environment from the proposed work or activity.” R.S., 1985 c. (9). It is important to note that the COGDP Regulations are but one of several sets of regulations under the COGOA, the rest of which do not adopt a systems approach, but rely on a more traditional prescriptive approach to regulation, as discussed in the Overview and White Paper No. 1 in this series. Nonetheless, the systems requirements for EPPs reflect a greater shift toward more comprehensive consideration of each offshore project as a whole than do the OCSLA regulations for EM, which appear to retain features that are more prescriptive and less integrated into an overall plan for each project.

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Drawing on the AOOG Guidelines for Environmental Monitoring (EM)

Rules for offshore development in the United States and Canada appear to comport with AOOOG recommendations for using results of EM in planning and compliance stages. But they provide little if any guidance on how EM results are used other project stages mentioned by the Guidelines such as verifying implementation of environmental strategies or assessing the adequacy of legislation. Administrative decision makers in both countries have substantial deference to decide the type and extent of EM required for offshore oil and gas development projects, even if Canadian regulators are given more guidance on which categories of information to include. Both systems develop requirements for EM on a case-by-case basis, recognizing that each proposed site will differ greatly. The AOOOG outline numerous specific elements that should be monitored during the pre-approval phase, throughout the project and during the decommissioning phase. Since both national systems require EM throughout all of these phases, the Guidelines can serve as a common reference for both countries and from project to project to ensure some minimum of comparability amongst the plans and the information they generate. With the Guidelines providing consistency as to the types of factors to be included in an EM plan, administrative discretion in both countries can be used to determine which factors are appropriate on a case-by-case basis. The largely scientific nature of much of EM renders it a good candidate for closer bi-national coordination. CEPA gives the Canadian Minister of the Environment specific authority to cooperate with foreign governments in designing EM systems generally, S.C. 1999, c. 33 s. 44(2)(a), which may provide additional impetus for both countries to work together to monitor environmental conditions over time in the Beaufort Sea.

For a survey of the offshore permitting process in each country, a list of references, and a description of this White Paper Series please refer to the letter and Overview accompanying this White Paper No. 2. Three additional White Papers are being published over the next month, one per week:

*Operating Practices - already posted at the URL below
Northern Communities - Participation in Decision Making
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The Overview and all four white papers will be posted at <http://www.vermontlaw.edu/energy/news> as each is distributed.

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