

Permitting Alternatives Identified for Offshore Oil and Gas Regulation, UK and Norway - Summary

Background and Context

BSEE is investigating potential alternatives to BSEE's current permitting processes for offshore operations. BSEE has specified seven tasks (Table 1) for identifying and assessing potential alternatives to BSEE's current processes. BSEE is evaluating offshore operation licensing programs being applied by regulatory agencies in Australia, Brazil, [Atlantic] Canada, Denmark, Mexico, Netherlands, New Zealand, Norway, and the United Kingdom, and also licensing programs being applied by U.S. Federal agencies, e.g., the Bureau of Land Management (BLM). The work includes evaluating alternatives to BSEE's current standards-based permitting program, including for example; application of risk-based licensing (e.g., safety case, probabilistic risk assessment), notification and "permit-by-rule" processes, time-limited applicant-submittal review processes, and applicant fee-based permitting programs.

The investigation began with developing an overview of licensing programs for each U.S. and international jurisdiction included in the project scope identifying potential alternatives within each evaluated program, and applying four criteria to evaluate and compare these alternatives: Efficiency; Effectiveness; Suitability for Purpose; and Implementability. The *Alternatives Summary 02-19-2015.docx* document summarizes the outcomes of the Task 1 work.

Under Task 2 a more detailed review was conducted of offshore licensing programs being applied in the United Kingdom (U.K. Health Safety, and Environment (HSE) Agency) and Norway (Norwegian Petroleum Safety Authority), using the same evaluation criteria. This work includes a summary grid comparative analysis of alternatives to facilitate the selection further detailed analysis of the alternatives under subsequent tasks. This document summarizes the outcomes of the Task 2 work.

Work will then move to conducting interviews with representatives of private sector firms that have had experience with the international licensing programs. BSEE's objective in conducting interviews is to gain "real world" insight as to how agencies are applying their programs and how companies are navigating the licensing process. Based on the results of the Task 1 and Task 2 Alternatives Assessment and Task 3 Interviews, the work will move to a further qualitative assessment of a subset of the identified alternatives to assess their viability (Task 4) and develop recommended options for application of the alternatives to BSEE (Task 5.) This will include an assessment of the potential benefits of each alternative both to BSEE and to offshore operator applicants, and identifying best practices and opportunities for improvement from the licensing programs evaluated. Work will move to summarize these analyses in a report (Task 6). Based on the Task 6 report (assuming there is potential) an evaluation will be made their existing regulatory framework and conduct a comparative analysis of how each alternative fits relative to the existing framework. This evaluation will include an overview of legislative, regulatory, and organizational changes that may be needed for BSEE to adopt and implement each alternative and recommendations for alternative implementation.

BSEE will need to anticipate conducting “post-project” activities in the event that BSEE decides to move ahead with one or more of the alternatives evaluated in Task 7. BSEE would first need to conduct a formal decision making process to decide which, if any, alternatives should be pursued for adoption by the agency. BSEE would then need to develop a detailed work plan for implementing the alternative, including a detailed regulatory (and/or legislative) development program, regulatory impact assessment (including cost-benefit analysis), departmental organization and staffing plans to develop and deploy the BSEE staff needed to first adopt the alternative and then to implement the alternative. These detailed “post-project” implementation activities are outside of the scope of BSEE’s current project. BSEE could decide after completion of the tasks within the scope not to implement any of the identified alternatives, or could decide to implement several of the identified alternatives. The objective of the seven tasks that are within the current scope is to provide BSEE with sufficient information to facilitate BSEE decision making concerning which (if any) alternatives to pursue and a road map to assist in moving towards alternative implementation.

Table 1 – Summary of Tasks for Assessment of Alternatives to BSEE Permit Processes.

Task 1 – Identify and Compile Alternatives to Permits and Permitting Efforts

- Identify Countries/Regions/Agencies
- Identify and Compile Potential Alternatives
- Develop Comparison Criteria
- Conduct Benchmark Comparative Analysis
- Develop Summary Grid.

Task 2 – Review “Notification” Processes for Norway PSA and U.K. HSE

- Conduct Detailed Review of PSA and HSE Programs
- Conduct Comparative Analysis/Summarize Findings
- Develop Summary Grid

Task 3 – Discussion with Companies on Regulatory Permits

- Develop company profiles
- Identify company contacts
- Conduct interviews
- Develop Summary Grid

Task 4 – Analyze Viability and Safety of Potential Permit Alternative Models

- Identify Alternative Models for Further Evaluation
- Develop Detailed Evaluation Criteria
- Develop Analytical Spreadsheet

Task 5 – Qualitative Assessment of Methods and Recommendations of Options

- Correlate Alternatives with Current BSEE Practices
- Develop Qualitative Assessment Criteria
- Develop Analytical Spreadsheet
- Identify Best Practices/Opportunities for Improvement
- Conduct Benefits Analysis

Task 6 – Draft and Final Report and Presentation of Findings

Task 7 (optional) – Regulatory Analysis of Existing Regulatory Framework with Options Recommended

- Assess current BSEE Regulatory Framework
- Conduct Comparative Analysis
- Develop Recommendations

1.0 Overview

This Task 2 assessment provides a summary analysis of the U.K. HSE and Norway PSA regulatory programs for licensing of offshore petroleum-related activities as alternatives to the BSEE permit program. These include the *U.K. Safety Case Approach* and *U.K. Notification Process* and the *Norway PSA Risk-Based Approach, Consent Agreement Process, and Notification Process*. These alternatives are evaluated based on four comparative evaluation criteria: Efficiency, Effectiveness, Suitability, and Implementation.

The potential effects of BSEE adopting each alternative on efficiency and effectiveness are evaluated from both the perspective of the agency and the applicant. Suitability for Purpose evaluates the extent to which each alternative meets the same objectives as the BSEE permit program. Implementation evaluates the practical aspects of the activities that BSEE would need to conduct (e.g., legislation; rulemaking; agency staffing; agency organization) to establish and implement the alternative programs. This assessment also provides recommendations as to the specific processes (alternatives) considered to be the most relevant to further and more detailed assessment under Tasks 3, 4, and 5.

2.0 Summary and Recommendations

2.1 U.K. Safety Case Approach

ICF recommends that BSEE further investigate the applicability of the U.K. Safety Case approach as an alternative to BSEE permit processes, however, ICF does not consider the U.K. HSE safety case approach to be potentially as advantageous to either BSEE or applicants as the Norway PSA approach with respect to the four evaluation criteria. The safety case approach, as implemented by U.K. HSE, appears to be more feasibly separable from the U.K. HSE's notification program than would be the Norway PSA risk-based approach and consent agreement/notification processes, which do not appear to be as feasibly separable. Further detailed assessment of the severability of the U.K. approach will be investigated by Subject Matter Experts (SMEs) as part of the Task 3 interview process.

- A safety case approach similar to U.K. HSE could potentially *reduce the efficiency* of both BSEE and applicants, due to the increased level of complexity of applicants preparing and BSEE reviewing risk-based analyses and anticipated need for additional BSEE and applicant staff.
- Reduction in efficiency could be partly mitigated by efficiency gained in implementing an accompanying notification process.
- A safety case approach similar to U.K. HSE could potentially *improve the effectiveness* of both BSEE and applicants in evaluating and mitigating risk and result in improved safety performance.
- A safety case approach itself *would not meet suitability for purpose criterion*; a safety case approach alone would not cover all of the areas and activities for which BSEE issues permits
- The safety case approach focuses on major accident risks and does not necessarily evaluate other aspects of offshore activities. Additional notification programs would need to be applied by BSEE to provide similar coverage of applicant-proposed activities as BSEE's permit program.
- BSEE could potentially use their development of a notification process to support development of a "permit-by-rule" process for offshore activities.

- Implementing a safety case approach would be a substantial endeavor for BSEE and would require substantial revisions to BSEE's regulations and BSEE's internal processes and organization, and would likely also require new legislation and a shift towards a more guidance-document based approach than BSEE's current regulatory approach.
- The U.K. HSE safety case approach depends upon a relatively complex hierarchical agency organizational structure that could be more difficult for BSEE to develop and implement, as compared to the Norway PSA approach.
- As for the PSA approach, BSEE would need to develop and maintain subject matter expert staff expertise to process safety case submittals and would need to prepare detailed guidance documents and technical standards for the alternative approach.

2.2 U.K. Notification Programs

The U.K. HSE notification program includes three types of notifications:

- Design/relocation: applicable to notifications concerning design of proposed installations and to relocation of existing installations
- Combined operations: applicable to notifications concerning proposed combining of operations of multiple installations
- Well operations: applicable to notifications concerning proposed well drilling and well operation activities

ICF recommends that BSEE further investigate the applicability of the U.K. notification programs as an alternative to BSEE permit processes. The notification programs (including design/relocation; combined operations; and well operations) could be applied by BSEE collectively either in combination with a safety case alternative or risk-based approach alternative, or as discrete stand-alone alternatives to BSEE permitting program elements. The fundamental difference between BSEE's permitting process and notifications as they are implemented at HSE is the level of required approval by the regulatory agency. For well operations under HSE's regime, after approval of a safety case, operators must only notify HSE and need not obtain approval for drilling plans for individual wells, as is required in a BSEE Application for Permit to Drill (APD). Even if BSEE did not implement a safety case approach, BSEE's approval process could shift towards requiring notification but not approval for certain activities, as implemented in the U.K. notification program. As discussed above, the U.K. HSE safety case approach itself would not meet all of the objectives of the BSEE permitting program and would need to be combined with notification programs or similar programs to meet the objectives of the BSEE permitting program.

2.3 Norway PSA Program

ICF recommends that BSEE further investigate the applicability of the Norway PSA risk-based approach and the Norway PSA consent agreement and notification process under Tasks 3, 4, and 5 as a *combined* alternative to the BSEE permit program. ICF's assessment is that the Norway PSA risk-based approach and the consent application and notification processes are interrelated programs and that all of these elements would need to be implemented by BSEE in some form to provide an effective and suitable alternative to the current BSEE permit program. i.e., evaluation of risk is inherent to the consent

application and notification processes within the PSA regulatory framework, and these framework elements are not feasibly separable.

- An alternative Norway PSA approach could potentially result in *decreased efficiency* for both BSEE and applicants due to the increased level of complexity of applicants preparing and BSEE reviewing risk-based and performance-based analyses and anticipated need for additional BSEE and applicant staff.
- This potential decrease in efficiency could in part be mitigated through the replacement of elements of BSEE's existing permit program, e.g., elimination of BSEE processing of individual well drilling permit applications.
- BSEE and applicants would likely need to apply more staff time for risk-based analyses and consent agreements and notifications than for BSEE's current permitting program.
- Risk-based submittals would likely contain more, and more detailed, information than submittals under BSEE's current program. Therefore, applicants would likely need to apply more staff time to prepare the risk-based-submittals, and the review timeframes for risk-based submittals could be longer than that experienced by applicants under BSEE's existing program.
- BSEE would likely need to establish and maintain Subject Matter Expert (SME) staff with specific expertise in subject matter areas relevant to risk-based analyses. BSEE would likely need to develop and implement a training program specific to subject matter areas of risk assessment
- The PSA program could potentially *improve the effectiveness* of both BSEE and applicants in identifying, evaluating and mitigating risks.
- Improvements in the identification, evaluation, and mitigation of risks through a risk-based submittal process could potentially result in improved safety performance.
- Applicants would provide more detailed submittals under a risk-based program and BSEE could thereby be able to conduct a more detailed and higher quality review of risk-based applicant submittals than reviews of submittals under BSEE's existing program.
- Risk-based analyses and performance-based standards could allow BSEE to focus more effectively on aspects of offshore operations that represent the greatest potential risk and facilitate application of more comprehensive and effective risk mitigation strategies, as opposed to BSEE's existing permitting program, in which the risk of activities is not explicitly evaluated.
- An alternative PSA approach would *meet the suitability for purpose* criterion and could provide additional coverage of safety aspects that are not fully addressed by the BSEE permit program. The PSA approach is based on a set of five integrated sets of regulations that cover all aspects of offshore operations over which the PSA has jurisdiction and also cover aspects over which other Norwegian agencies have jurisdiction. BSEE could potentially establish similar coverage of aspects of offshore operations through a PSA-type approach.
- Implementing a risk-based approach and consent agreement and notification process would be a substantial endeavor for BSEE and would require substantial revisions to BSEE's regulations and BSEE's internal processes and organization, and would likely also require new legislation.

- BSEE would need to develop and maintain Subject Matter Expert (SME) expertise to process risk-based submittals and also to prepare the detailed technical guidance documents that would be needed for the alternative risk-based approach.
- However, the potential effectiveness advantages of a risk-based approach and consent agreement/notification process merits further investigation of the Norway PSA approach.

2.4 Comparative Assessment

The safety case approach as applied by U.K. HSE is focused on assessment of “major accident risks” associated with offshore activities and evaluation of how offshore activities individually and collectively contribute to major accident risk. As defined in HSE’s Offshore Safety Case Regulations, a “major accident” refers to:¹

- a) a fire, explosion or the release of a dangerous substance involving death or serious personal injury to persons on the installation or engaged in an activity on or in connection with it;
- b) an event involving major damage to the structure of the installation or plant affixed thereto or any loss in the stability of the installation;
- c) the collision of a helicopter with the installation;
- d) the failure of life support systems for diving operations in connection with the installation, the detachment of a diving bell used for such operations or the trapping of a diver in a diving bell or other subsea chamber used for such operations; or
- e) any other event arising from a work activity involving death or serious personal injury to five or more persons on the installation or engaged in an activity in connection with it.

The safety case approach is not itself comparable to the BSEE permit program or to the PSA Consent Agreement program as the U.K. safety case process does not apply to the universe of offshore activities that may be proposed by applicants. For example, the safety case approach is supplemented by well notifications, which include additional detail on operations for wells (e.g., dates, diagrams).

¹ See the Offshore Installations (Safety Case) Regulations 2005, Regulation 2:
<http://www.legislation.gov.uk/uksi/2005/3117/contents/made>.

Table 1 – Comparative Assessment of Alternative Processes					
	U.K. Safety Case	UK. Notification	Norway Risk-based Approach	Norway Notification	BSEE Permit Program
Efficiency	<p>Safety case submittal required six (for production installation) or three (for non-production installation) months prior to proposed activity</p> <p>15-step review process; 16 topic teams, subject matter experts</p>	<p>For design/re-location notifications agency responds to notifications with request for information (if any) within 40 days of submittal.</p> <p>Close out report within 90 days of submittal for design/relocation; 30 days for combined operations.</p>	<p>Review process appears to be less hierarchal than HSE, but still as technically detailed as HSE</p> <p>Four weeks for PSA to typically review a consent application</p> <p>13 weeks for Norway ENV agency to process environmental documentation</p>	<p>Applicants notify concerning any changes to operations; PSA reviews against previously-approved consent agreement</p>	<p>Implementation of either Norway or U.K. risk-based approach would likely require more staff time and result in longer review timeframes than BSEE's current process.</p> <p>Norway or U.K. notification processes could result in decreased submittal burden on applicants and decreased review burden on BSEE; Norway processes appear more efficient than comparable U.K. processes.</p>
Effectiveness	<p>15-step review; subject matter experts; more thorough review of safety aspects of proposed activity than BSEE</p> <p>Technology and process proposed by applicant; not specified by regulations</p>	<p>Risk review process; subject matter experts; inspection (i.e., review) if the potential for risk is outside boundaries of an already approved safety case.</p>	<p>Subject matter expert review process</p> <p>Technology and process proposed by applicant; not specified by regulations</p>	<p>Operator is required to notify the agency of any change to the activity which departs from the preconditions in the previously approved consent application.</p>	<p>Norway appears to apply a higher risk standard (i.e., more risk mitigation) than U.K. does and therefore Norway process may result in lower risk levels.</p>
Suitability	<p>Focused on primarily major accident risks; safety case does not necessarily address other aspects of offshore activities.</p>	<p>Covers design / relocation; combined operations; and well operations</p>	<p>Consent applications with risk-based analysis required for all petroleum-related activities; applies combined safety, environmental and health regulatory requirements</p>	<p>Combined Norway risk-based approach, consent application, and notification approach appears to cover most aspects of current BSEE program.</p>	<p>Safety case covers a more limited subset of offshore activities than does BSEE's permit program; activities not covered in detail by safety case are covered by notification in the U.K. HSE framework.</p>
Implementation	<p>Specific hierarchal organizational structure; BSEE would need to develop internal performance standards for safety case</p>	<p>Still need subject matter experts for case-by-case reviews of notifications; this is not a checklist approach or a permit-by-</p>	<p>Regulatory framework; common set of regulations; combined risk-based approach and prescriptive requirements.</p>	<p>Still need subject matter experts for case-by-case reviews of notifications; reviews of notifications for</p>	<p>Overall combined Norway approach appears to be more implementable for BSEE than the combined U.K. approach.</p>

	<p>review process</p> <p>BSEE would need to develop new regulations; possibly new legislation would be needed to establish BSEE regulatory authority for the program.</p> <p>BSEE would need to develop safety case acceptance criteria</p> <p>BSEE would need to develop detailed technical guidance documents/"good practice" guides.</p>	<p>rule approach; reviews of notifications for existing installations would likely be conducted by reviewers already familiar with the installation.</p> <p>Still need risk acceptability criteria and guidance documents to guide the review process</p>	<p>Regulatory structure complexity; cross-references;</p> <p>New regulations; new legislation</p> <p>Detailed guidance documents and technical standards</p>	<p>existing installations would likely be conducted by reviewers already familiar with the installation.</p> <p>Still need risk acceptability criteria and guidance documents to guide the review process</p>	
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3.0 U.K. Safety Case Approach

3.1 Efficiency

Application of a Safety Case approach could potentially decrease BSEE efficiency.

Processing safety case documentation is expected to be more complex and technically demanding for BSEE management and technical staff than the BSEE's current permit approach of applying pre-established prescribed standards to specific activities. The Safety Case approach, as implemented by U.K. HSE, requires the agency to maintain technical experts in 16 separate technical topic areas. ICF anticipates that BSEE would need to establish and maintain a similar level of technical staff support to effectively implement a safety case approach. U.K. HSE also requires safety case documentation to be submitted for proposed production installations six months prior to the proposed commencement of activities. The safety case approach, if implemented by BSEE, would require BSEE to apply additional staff time, and higher-level staff time, and would require a longer documentation review schedule, than would the processing of conventional permit applications under BSEE's current system.

Application of a Safety Case approach could potentially reduce applicants' efficiency.

Applicants would likely need to expend more staff time and would likely experience longer submittal review timeframes under a safety case approach than under BSEE's existing program. Under the safety case approach applicants would need to identify "major accident" scenarios for applicant-proposed activities and develop case-by-case safety case documentation for each scenario. U.S. applicants have not previously been required to conduct safety case analyses, and therefore would likely need to expend resources to develop technical staff and implement the internal systems and procedures needed to prepare safety case documentation. Applicants, in particular multinationals that may have corporate experience in safety case analysis, would likely be better able to respond to BSEE adopting a safety case approach and could also develop efficiencies over time; however applicants would be required to provide more detailed and more information concerning risk assessment and risk management under a safety case approach than under the current BSEE permit program. Overall impact to efficiency would be greater on the BSEE than on applicants.

Reduction in efficiency could be partly mitigated by efficiency gained in implementing an accompanying notification process.

The safety case analysis is in general an "installation-based" analysis; it is supplemented by notifications from operators to HSE that include more detailed information related to well operations, combined operations, and design/relocation. Operators are not required to obtain approval from HSE for notifications before beginning operations. Among other activities, BSEE's permitting process includes individual permit applications for wells. If BSEE were to implement a safety case and notification process similar to the U.K.'s, there may be efficiency gains in reducing the number of permits that must be approved by BSEE (e.g., by not requiring approval of Applications for Permit to Drill for individual wells).

3.2 Effectiveness

The safety case approach could potentially improve effectiveness of both BSEE and applicants and result in improved safety performance.

Safety case analysis explicitly addresses assessment of major accident risks. Safety case analysis applies technical expertise in a broad range of topic areas to assessment of major accident risk and is a consensus-based process. Thereby safety case analysis would provide a more detailed assessment of the potential major accident risks associated with applicant-proposed activities than BSEE's current permitting program, under which BSEE does not explicitly assess major accident risk. Although HSE publishes guidance for assessors of safety cases that address good practice, HSE states that the guidance "does not purport to present definitive criteria in respect of the adequacy of the technical content of safety case submissions." Approaches proposed by duty holders for addressing major accidents are assessed on a case-by-case basis. Applying this approach would result in a more holistic assessment of major accident risks than is currently implemented under BSEE's regulations, which specify standards and equipment for the assessment of major accident risk which apply to all operators. This could potentially result in application of more effective controls to critical safety elements related to major accident risk and reduction of potential for major accidents.

3.3 Suitability for Purpose

The safety case approach itself does not address all of the objectives of the BSEE permitting program and would need to be implemented along with other programs to meet the suitability for purpose criterion.

The safety case approach is focused on the assessment of major accident scenarios and takes an installation-centric approach. The safety case approach itself would not meet all of the objectives of the current BSEE permitting process because some activities requiring BSEE's approval are addressed under the HSE notification process rather than the safety case approach. BSEE would need to either retain elements of its current permitting program or implement a HSE-type notification process or similar process in order to provide agency review of applicant-proposed activities that are not covered in a similar level of detail or scope in a safety case assessment process.

The safety case approach as implemented in the U.K. does not include an explicit environmental impact assessment component. Environmental aspects are considered in the safety case and notification processes to the extent that these environmental aspects are associated with the scope of these required submittals, however, some environmental aspects (e.g., approval of oil spills prevention plans) are outside of the jurisdiction of the U.K. HSE and fall within the jurisdiction of the U.K. DECC. Environmental regulation of offshore operations in the U.K. is the responsibility of a different U.K. agency than is the safety case. The nexus of the safety and environmental components of regulation could potentially affect the overall suitability of the safety case approach.

[We have not investigated in detail U.K. DECC processes for environmental permitting of offshore activities. If BSEE wants to pursue safety case as an alternative to their current permitting process, we may need to further investigate the relationship (or lack thereof) between U.K. HSE and U.K. DECC.]

3.4 Implementation

The safety case approach would represent a fundamental change in how BSEE regulates offshore activities and would require technical and organizational changes to BSEE permitting processes.

Development and Training of Technical and Management Staff

Safety case analysis depends upon review of safety case documentation by subject matter experts. U.K. HSE applies subject matter experts in 16 technical topic areas to review of safety case documentation. Review of applicant submittals under the BSEE's current permitting program and comparison of the application content to prescriptive standards would not require as broad a range of application of subject matter experts as would a safety case approach. Under a safety case approach "one" agency staff person, or even several agency staff, could not effectively review and issue determinations for safety case submittals. Because each safety case is assessed on a case-by-case basis with regard to whether major accident risks have been effectively addressed, the safety case assessment process requires more intensive review and internal discussion than does a review process which confirms that a given installation meets a prescriptive regulatory requirement. To implement a safety case approach, BSEE would need to develop or train both technical and management staff to review and make decisions on safety case analyses.

Substantial Changes to BSEE's Organizational and Management Structure

Application of a safety case approach depends upon a consensus-based process for agency decision making involving technical staff (subject matter experts) and management staff. BSEE would likely need to apply substantial changes to its organizational framework and management processes to establish a consensus-based review and decision making process for safety case documentation.

Regulatory Development

BSEE would need to develop an entirely new set of regulations to support a safety case approach. New legislation to establish BSEE regulatory authority to conduct a safety case approach may also be needed.

Regulations would need to define the safety case approach and safety case acceptance criteria, and provide the general framework for applicants to apply to prepare safety case documentation and for BSEE to apply to review and make decisions on safety case documentation. This would include BSEE establishing a framework for the agency to decide what constitutes "acceptable safety" for agency decision making on safety cases. It is anticipated that "acceptable risk" would be defined directly by regulation and that the process for applying acceptable risk to documentation reviews would be described in guidance documents. BSEE would need to develop additional technical and management staff expertise to support the regulatory development process for the safety case approach.

BSEE would also need to develop a framework to integrate the safety case approach with potentially separate sets of regulations applicable to agency review of applicant-proposed activities that fall outside of the safety case assessment framework (e.g., the notification process under HSE) and also applicable to environmental impact assessment of applicant-proposed activities. This could require BSEE to conduct multiple rule makings for the safety and environmental components that could involve other Federal agencies with jurisdiction over aspects of offshore activities.

Guidance Document Development

BSEE would need to prepare technical guidance documents establishing practices and procedures for preparing and reviewing safety case documentation.

The safety case approach depends upon a set of technical guidance documents that define procedures for applicants to apply in preparing safety case documentation and for agency subject matter experts to apply in reviewing and making decisions on safety case documentation. These technical details of the safety case approach application would be too voluminous and too detailed to include in the BSEE regulations establishing the safety case approach. It is expected that the level of detail required could not feasibly be included in Federal Register notices, nor would this be desirable as it would be expected that the engineering and scientific bases for safety case analysis (what the subject matter experts would need to apply) would change over time. Reopening regulations to respond to such changes would not be practical. Therefore BSEE would need to prepare a series of technical guidance documents establishing practices and procedures for preparing and reviewing safety case documentation. BSEE currently does not publish many detailed guidance documents to support BSEE regulations, and developing technical guidance documents to support regulatory processes would represent a shift in existing practices.

4.0 U.K. Notification Process

U.K. HSE also implements a notification process that applies to applicant-proposed offshore activities, including, design and relocation, combined operations (i.e., operations involving more than one installation) and well operations.²

For installations with a previously approved safety case (e.g., for notification of proposed relocation), HSE assesses whether the notified activities are within the scope of the previously-approved safety case for applicant operations, however, HSE does not issue permits or approvals for notified activities. HSE can take action, e.g., by obtaining additional information from the applicant and conducting detailed review of the notification, if HSE believes that the notified activity falls outside of the applicant's approved safety case or otherwise presents a potential risk.

As the safety case approach is focused on assessment of major accident scenarios and takes an installation-centric approach, BSEE would need to either retain elements of its current permitting program or implement HSE-type notification processes or similar processes in order to provide review of applicant-proposed activities that are not covered in equivalent detail or scope under the safety case approach. BSEE could also implement notification processes similar to the HSE processes independent of any decision by BSEE to implement a safety case approach, which could include identifying activities that currently must be approved by BSEE that could instead be included in notifications (which do not require approval under the HSE regime). BSEE could also implement notification processes combined with another risk-based approach (e.g., the Norway PSA approach).

4.1 Efficiency

Application of a notification process similar to the U.K. HSE process could potentially improve efficiency on the part of both BSEE and applicants.

² Notification processes for proposed well operations are covered by a different set of guidance documents than notifications for proposed design and relocation and proposed combined operations; ICF was not able to obtain copies of the guidance documents applicable to well operations notification processes.

Application of a notification approach combined with a safety case approach could potentially partially mitigate decreased agency efficiency associated with the safety case approach.

The potential decrease in efficiency resulting from application of the safety case approach could be mitigated to some extent if the safety case approach is combined with notification processes such as implemented by U.K. HSE, rather than if the safety case approach was applied to the BSEE permitting program without modifying other parts of the BSEE permitting program.

Under the notification process, operators that already have agency-approved safety cases are required to submit notifications to the agency for design/relocation, combined operations, and well operations, but operators are not required to secure HSE's approval. HSE reviews the notifications to determine that the proposed activity falls within the boundaries of an approved safety case.

The design notification process is intended to provide the agency with the ability to review proposed designs prior to development of safety case documentation. Agency review of the proposed design prior to preparation of safety case documentation by the applicant would facilitate early identification of potential issues and could potentially reduce the amount of resources applicants need to provide to prepare the safety case and the amount of resources the agency needs to review the safety case.

A well operations notification process would reduce the number of "permit applications" received by the agency, e.g., applicants would not be required to submit a separate drilling permit application for each individual proposed well under a notification process similar to the U.K. HSE notification process.

Safety case documentation would be focused primarily on major accident scenarios and submittals would be installation-centric rather than activity-centric. Applicant-proposed activities not covered under the safety case process could be covered by a notification process. The combined safety case approach and notification process (i.e., collectively the overall U.K. HSE approach) would not be expected to result in a net improvement in efficiency for either BSEE or applicants as compared to the efficiency of the current BSEE permitting program.

4.2 Effectiveness

The notification process could improve BSEE and applicant effectiveness and result in improvement in safety performance.

Design notifications allow the agency to review proposed designs to identify potential safety case issues and other potential health and safety issues in advance of the applicant applying the proposed design. The notification process could potentially improve effectiveness by allowing the agency to recognize and address potential health and safety issues early in the design process. The notification processes for well operations and for other proposed operations would also facilitate the agency in identifying potential safety issues associated with the activities subject to notification.

4.3 Suitability

The notification program itself does not address all of the objectives of the BSEE permitting program and would need to be implemented along with other programs to meet the suitability for purpose criterion.

Notification processes for design/relocation, well operations, and combined operations as implemented by U.K. HSE are combined with a safety case approach to identify major accident scenario risks. The notification process serves to identify potentially issues relevant to the safety case analysis and to identify other safety and health-related compliance issues associated with the proposed activities. Notification processes would therefore need to be combined with a safety case approach or a risk-based assessment process to meet the suitability for purpose criterion.

4.4 Implementation

Application of notification processes would represent a fundamental change in how BSEE regulates offshore activities and would require technical and organizational changes to BSEE permitting processes.

Development and Training of Technical and Management Staff

Notifications under the U.K. HSE program are reviewed by technical staff (subject matter experts) to identify potential health and safety issues and assess consistency with agency-approved safety cases. Therefore, BSEE would need to develop additional technical expertise in safety and risk management subject matter areas to implement notification processes.

Regulatory Development

BSEE would need to develop new regulations to support notification processes. New legislation to establish BSEE regulatory authority to conduct notification processes may also be needed.

New regulations would be needed to define the notification processes, what proposed activities are subject to notification, required content of notifications, and decision criteria applicable to notifications. Notification processes would replace, at least in part, BSEE's permitting regulations and prescriptive requirements. For example, drilling permits for wells could be replaced by a well operations notification process.

The regulations that BSEE would develop for the notification process could also support development of a "permit-by-rule" approach, in which BSEE also develops a list of activities that are "presumptively" permitted. Activities subject to "permit-by-rule" would typically be activities that represent a "de minimis" risk and therefore could be implemented by applicants without BSEE needing to conduct site-specific analysis. "Permit-by-rule" activities would typically differ from "notification" activities in that "notification" activities would be potentially significant, and therefore would be evaluated by the agency in the context of their potential effects on existing (previously approved) site-specific risk-based analyses. "Permit by-rule" activities, conversely, would be of less potential impact and would typically not merit site-specific analysis.

Guidance Document Development

BSEE would need to develop guidance documents to support notification processes. Guidance documents would provide information to applicants and the agency in the process of preparing and reviewing notifications.

5.0 Norway PSA Risk-Based Approach/Consent Agreement Process

5.1 Efficiency

Application of a risk-based approach could potentially decrease BSEE efficiency.

Processing risk-based documentation is expected to be more complex and technically demanding for BSEE management and technical staff than the BSEE's current permit approach of applying pre-established prescribed standards to specific activities. The risk-based approach, as implemented by Norway PSA, depends upon application of technical standards and guidance documents covering a wide range of risk assessment topics. ICF anticipates that BSEE would need to establish and maintain additional, high level, technical staff support to successfully implement a risk-based approach. A risk-based approach would likely require BSEE to apply additional staff time and would require a longer review schedule, than would conventional permit applications under BSEE's current system. BSEE would also need to expend resources to develop and maintain Subject Matter Experts for review and evaluation of risk-based submittal.

Application of a risk-based approach could potentially reduce applicants' efficiency.

Under the risk-based approach applicants would need to conduct installation-specific risk assessments identify and safety and environmental risks and develop case-by-case proposals for mitigation of identified risks. U.S. applicants have not previously been required to conduct installation-specific risk assessments, and therefore would likely need to expend resources to develop and implement internal systems and procedures to prepare and submit risk assessment documentation. Applicants, in particular multinationals that may have corporate experience in risk-based processes, would be better able to respond to BSEE adopting a risk-based approach, and likely would develop efficiencies over time; however applicants would be required to provide more detailed information concerning risk assessment and risk management under a risk-based approach than under the current BSEE permit program.

5.2 Effectiveness

The risk-based approach could potentially improve effectiveness of both BSEE and applicants and result in improved safety performance.

The risk-based approach explicitly requires identification and assessment of safety and environmental risks for applicant-proposed activities. Under the risk-based approach the applicant is responsible for identifying potential risks and proposing mitigation strategies for managing and reducing such risks. Thereby the applicant would be able to propose innovative approaches to risk reduction and risk management rather than the applicant being constrained to apply only the specific systems and procedures in BSEE's prescriptive regulations. Both BSEE and applicants could be better able under a risk-based approach to focus on critical elements of the proposed operation that have the potential to contribute to safety and environmental risks and applicant-proposed mitigation of the identified risks, rather than BSEE reviewing proposed activities and applying prescriptive standards regardless of the potential risk associated with each proposed activity. This could result in application of more effective controls to critical elements related to safety and environmental risk.

5.3 Suitability

The PSA licensing framework including risk-based regulations, consent agreement process, technical standards, and guidance documents appears to be a comprehensive approach to licensing of offshore activities that meets the suitability criterion.

The risk-based approach and consent agreement process overseen by PSA explicitly considers both the safety and environmental aspects of applicant-proposed activities. PSA is similar to the U.K. HSE/DECC relationship in that the Norway Environmental Agency (NEA), and not PSA, issues consent agreements for applicant proposed activities related to the natural environment and oversees environmental risk analysis and emergency preparedness (e.g., for oil spills). However, PSA differs from the U.K. HSE/DECC relationship in that NEA, PSA, and other Norway agencies that have jurisdiction over offshore activities operate under a common regulatory framework, and in that the PSA regulations explicitly require that environmental aspects be considered in the consent agreement process. Consent applications submitted by applicants are considered legally binding documents under Norwegian regulations, and applications bind the operator to comply with regulatory requirements applicable to the proposed activity that are set by the PSA, Norwegian Environment Directorate and Norwegian Board of Health.

5.4 Implementation

Implementation of a PSA-type risk-based approach and consent agreement process would represent a fundamental change from the current BSEE permitting process.

BSEE Needs:

- a) develop and maintain technical staff in multiple disciplines to develop and maintain risk-based regulations and guidance documents;
- b) develop and implement decision process to establish “acceptable risk” levels to be incorporated into regulations and applied in the risk-based process;
- c) establish and participate in an ongoing technical standards-setting process to develop and maintain technical standards that would be referenced in guidance documents;
- d) develop and maintain technical staff to conduct reviews and issue decisions for risk-based submittals.

Development and Training of Technical and Management Staff

Risk-based analysis depends upon review of risk-based documentation by subject matter experts. PSA reported (as of January 2014) that there are 135 individual technical standards, covering a wide range of subject areas, included in PSA guidance documents. Review of applicant submittals under the BSEE’s current permitting program and comparison of the application content to prescriptive standards would not require as broad a range of application of subject matter experts as would a risk-based approach. Because each risk-based consent application is assessed on a case-by-case basis with regard to whether risk standards have been met and identified risks effectively addressed, the risk-based assessment process requires more intensive review and internal discussion than does a review process which confirms that a given installation meets a prescriptive regulatory requirement. To implement a risk-

based approach, BSEE would need to develop or train both technical and management staff to review and make decisions on risk-based analyses.

Regulatory Development

BSEE would need to develop an entirely new set of regulations to support a risk-based approach and consent agreement process. New legislation to establish BSEE regulatory authority to conduct a risk-based approach may also be needed.

Regulations would need to define the risk-based approach and acceptable risk criteria, and provide the general framework for applicants to apply to prepare risk-based documentation and for BSEE to apply to review and make decisions on risk-based documentation. This would include BSEE establishing a framework for the agency to decide what constitutes “acceptable risk” for agency decision making. It is anticipated that “acceptable risk” would be defined directly by regulation and that the process for applying acceptable risk to documentation reviews would be described in technical standards and guidance documents. BSEE would need to develop additional technical and management staff expertise to support the regulatory development process (and also guidance document and technical standard development process) for the risk-based approach.

BSEE would also need to develop a framework to integrate the risk-based approach with potentially separate sets of regulations applicable to environmental impact assessment of applicant-proposed activities. This could require BSEE to conduct multiple rule makings for the safety and environmental components that could involve other Federal agencies with jurisdiction over aspects of offshore activities.

Guidance Document and Technical Standards Development

BSEE would need to prepare guidance documents establishing practices and procedures for preparing and reviewing risk-based documentation.

BSEE would need to participate in processes for development of technical standards that would be referenced in the guidance documents.

Similar to the U.K. HSE safety case approach, the PSA risk-based approach and consent agreement process depends upon a set of guidance documents that describe procedures for applicants to apply in preparing risk-based documentation and for agency subject matter experts to apply in reviewing and making decisions on risk-based documentation. The PSA also depends, to a greater extent than does the HSE, upon technical standards that describe specific practices and procedures. PSA reported (as of January 2014) that there are 135 individual technical standards included in PSA guidance documents, and that PSA is actively participating in 35 separate technical standards-development initiatives. PSA participates as an “active and agenda-setting” participant in national and international standards

development including the North Sea Offshore Authorities Forum (NSOAF), the International Regulators Forum (IRF) and the International Committee on Regulatory Research and Development (ICRARD).³

In the PSA framework the regulations establish the risk standards that the applicant is required to meet and guidance documents and technical standards provide applicants with guidelines as to approaches to meet the risk standards and other regulatory requirements. In the PSA framework conformance to the guidance documents provides applicants with a presumption of compliance with the PSA regulatory requirements, however, the applicant may propose other approaches that either meet or exceed the established risk standards and other regulatory requirements.

Therefore, the guidance documents that would be developed to support a risk-based approach would not elaborate on and provide more detailed explanation of the regulations, but rather would describe e.g., practices and procedures for how applicants can conduct risk assessments for offshore operations. BSEE would need to apply technical expertise in risk assessment and other technical areas to prepare these guidance documents, and would also need to provide technical representation to standards-development processes.

Also, generally in the U.S., guidance documents and technical standards are not “enforceable” unless they are explicitly referenced in statutes and regulations and unless statutes and regulations explicitly state that the guidance documents and technical standards are enforceable. This differs from the PSA approach (and to a large extent also the HSE approach) in which the guidance documents and technical standards are an inherent part of the regulatory framework even though they are not themselves regulations. This will require a different approach to both rulemaking (and potentially legislation) and regulatory implementation than BSEE’s current experience.

Note that the technical staff that would be involved in regulatory development, acceptable risk determination, and technical standards development would not necessarily be the same set of technical staff that would be involved in reviewing and issuing decisions on risk-based submittals. As envisioned, the risk-based submittal review and decision process could be organized such that mid-level engineering and scientific staff conduct initial reviews of risk-based submittals (based on review procedures incorporated into guidance documents) and then preliminary determinations would be reviewed by more experienced engineering and scientific staff, and management tasked with issuing decision documents based on the final determination of the technical staff.

³ PSA International collaboration - <http://www.psa.no/international-collaboration/category918.html>
Permitting Alternatives Identified for Offshore Oil and Gas Regulation, UK and Norway Summary
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