



Permit Alternatives and Assessment Study Task 1 to Task 5 Summary Report

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Acronyms

ALARP	As low as reasonably practicable
APD	Application for Permit to Drill
BSEE	Bureau of Safety and Environmental Enforcement
CFR	Code of Federal Regulations
DWOP	Deep Water Operations Plan
HSE	Health and Safety Environmental Agency
ICF	ICF International
OSRP	Oil Spill Response Plan
PSA	Petroleum Safety Authority
U.K.	United Kingdom
U.S.	United States

Executive Summary

The Bureau of Safety and Environmental Enforcement (BSEE) is investigating potential alternatives to their current permitting, approval, and oversight processes for offshore operations (under the Code of Federal Regulations (CFR) Title 30, Part 250), including district field operations, regional field operations, production and development, technical data management, and safety and environmental management. The purpose of this study is to develop a qualitative assessment of alternative permitting and oversight programs that are being used by other domestic and international regulators, and provide recommendations for potential alternatives to be applied by BSEE based on the assessment.

BSEE specified six tasks for identifying and assessing potential alternatives to BSEE's current processes:

- Task 1 – Identify and Compile Alternatives to Permits and Permitting Efforts
- Task 2 – Review Notification Processes for Norway Petroleum Safety Authority (PSA) and the United Kingdom's (U.K.) Health and Safety Executive (HSE)
- Task 3 – Discussion with Companies on Regulatory Permits
- Task 4 – Analyze Viability and Safety of Potential Permit Alternative Models
- Task 5 – Qualitative Assessment of Methods and Recommendations of Options
- Task 6 – Draft and Final Report and Presentation of Findings

This report provides a summary of work conducted in Task 1 through Task 5, including selection of a recommended option. A separate report describes additional detail on the recommended option identified in Task 5, including development of a conceptual framework for the recommended option and potential implementation of the recommended option as a pilot program.

In Task 1 ICF International (ICF) evaluated offshore operation licensing programs being applied by the United States (U.S.) and international regulatory agencies including Australia, Brazil, Canada (Atlantic), Denmark, Mexico, the Netherlands, New Zealand, Norway, and the United Kingdom. ICF evaluated the Norway and United Kingdom programs in greater detail in Task 2. ICF identified 14 potential alternatives that could be applied as alternatives to BSEE's permitting, approval, and oversight programs. These included risk-based alternatives (safety case, probabilistic risk assessment, plan-based approach, and performance-based standards), alternative permitting strategies, alternative agency funding mechanisms, and third-party auditing. ICF applied four criteria to evaluate and compare these alternatives: Efficiency; Effectiveness; Suitability for Purpose; and Feasibility of Implementation, and developed a summary grid comparative analysis of the 14 alternatives and selected a subset of these for further detailed analysis.

In Task 3, ICF subject matter experts conducted interviews with representatives of private sector firms that have had experience with international licensing and regulatory programs for offshore operations. A total of 12 interviews (and 5 follow up discussions) were conducted with representatives with working knowledge of licensing and regulatory programs in Australia, Brazil, Canada, Mexico, Netherlands, Norway, and the United Kingdom.

In Task 4, ICF refined the evaluation criteria applied in Tasks 1 and 2 and conducted a screening of “non-viable” alternatives from further consideration and evaluation in subsequent tasks. The screening analysis was applied to eliminate from further consideration only alternatives that either were clearly not viable for BSEE to implement (e.g., because of lack of existing BSEE legal authority to do so) or that clearly would not support BSEE’s overall responsibilities as a regulatory agency (e.g., the alternative would conflict with BSEE’s management principles or strategic goals). ICF also applied two additional alternative evaluation criteria, (1) Consistency with BSEE Management Principles and (2) Strategic Goals, to further evaluate the remaining alternatives.

In Task 5, ICF initially evaluated the alternatives recommended for further assessment in Task 4 to develop recommended options for application of the alternatives to BSEE. The initial Task 5 assessment resulted in selection of specific combinations of alternatives for further evaluation in Task 5. These alternative combinations were based on the previously evaluated risk-based alternatives (i.e., safety case, probabilistic risk assessment, risk-based plans) and incorporated alternative permitting approaches (i.e., notification and permit-by-rule.) Based on further evaluation of the combined alternatives using the six evaluation criteria, and review by BSEE, BSEE selected the combined plan-based approach for further evaluation in Task 5. The combined plan-based approach includes risk-based plan submittals, notification and permit-by-rule programs, and a third-party audit program. The combined plan-based approach was selected for further evaluation based on its relative feasibility of implementation as compared to other alternatives; its consistency with BSEE’s management principles and strategic goals; and assessment of potential effectiveness, efficiency, and suitability.

In the second phase of Task 5 (and captured in a separate report) ICF developed a conceptual framework for the combined plan-based approach, including a summary grid of how BSEE’s existing plan and permit application requirements would correspond to the specific plan submittals envisioned to be included in the plan-based approach (the Conceptual Plan, Pre-production Plan, Operations Plan, Response Plan, and Decommissioning Plan). Plans would be risk-based; operators would, in their plan submittals, identify and assess risks associated with critical elements of offshore operations and propose risk mitigation methods to reduce risks to as low as reasonably practicable (ALARP), as defined by BSEE. BSEE would apply risk-based review criteria to review plan submittals. BSEE’s acceptance of an operator’s plan submittal would constitute authorization for the operator to conduct the activities described in the plan. The combined plan-based approach and notification and permit-by-rule programs would meet the intent of BSEE’s existing regulations and would replace BSEE’s current permitting program.

ICF also developed a conceptual framework (also detailed in the separate report) for BSEE to implement a pilot program in which selected applicants would apply for proposed offshore operations using the combined plan-based approach rather than BSEE’s current permitting program. The purpose of the pilot program is for BSEE to further develop the combined plan-based approach through application to actual proposed offshore operations, working directly with applicants participating in the pilot program. BSEE would implement a process to select applicants for the pilot program, and then, working with applicants and subject matter experts, would develop detailed guidelines for pilot program participants to prepare plan submittals, including guidelines for applicants to conduct hazard identification, risk analysis, and

risk mitigation for critical elements of their proposed operations. BSEE would also develop and apply notification and permit-by-rule processes and third-party auditing as part of the pilot program. BSEE would apply the results of the pilot program to further develop, refine, and implement the combined plan-based approach for future proposed offshore operations.

1.0 Background

1.1 Objectives

BSEE is investigating potential alternatives to their current permitting, approval, and oversight processes for offshore operations (under the Code of Federal Regulations (CFR) Title 30, Part 250), including district field operations, regional field operations, production and development, technical data management, and safety and environmental management. The purpose of this study is development of a qualitative assessment of alternative permitting and oversight programs that are being used by other domestic and international regulators, and provide recommendations for potential alternatives to be applied by BSEE based on the assessment.

1.2 Project Scope

BSEE specified six tasks for identifying and assessing potential alternatives to BSEE's current processes:

- Task 1 – Identify and Compile Alternatives to Permits and Permitting Efforts
- Task 2 – Review Notification Processes for Norway PSA and U.K. HSE
- Task 3 – Discussion with Companies on Regulatory Permits
- Task 4 – Analyze Viability and Safety of Potential Permit Alternative Models
- Task 5 – Qualitative Assessment of Methods and Recommendations of Options
- Task 6 – Draft and Final Report and Presentation of Findings

In Task 1 ICF evaluated offshore operation licensing programs being applied by U.S. and international regulatory agencies. BSEE included the following U.S. and international programs in the project scope:

- **Australia:** The National Offshore Petroleum Safety and Environmental Management Authority
- **Brazil:** The National Agency of Oil; Gas and Biofuels
- **Canada-Newfoundland and Labrador:** The Offshore Petroleum Board
- **Canada-Nova Scotia:** The Offshore Petroleum Board
- **Denmark:** The Danish Energy Agency
- **Mexico:** The National Hydrocarbon Commission
- **Netherlands:** The State Supervision of Mines
- **New Zealand:** The Department of Labor
- **Norway:** The Petroleum Safety Authority
- **United Kingdom:** The Health and Safety Executive
- **United States:**

- The Bureau of Land Management
- U.S. Environmental Protection Agency
- Nuclear Regulatory Commission
- Federal Aviation Administration
- Occupational Safety Health Administration

In Task 1 ICF developed an overview of licensing programs for each U.S. and international jurisdiction included in the BSEE project scope. ICF identified potential alternatives within each evaluated U.S. and international licensing program for specific BSEE permitting, approval, and oversight programs, and applied four criteria to evaluate and compare these alternatives: Efficiency; Effectiveness; Suitability for Purpose; and Feasibility of Implementation. BSEE identified the following BSEE permitting, approval, and oversight programs for evaluation in the scope of work:

- Administration
 - Royalty Relief Application
 - Compensation Royalty Determination Request
- Exploration
 - Application for Permit to Drill (APD)
 - Classifying an area for the presence of hydrogen sulfide
 - Application for Permit to Modify (APM)
- Development
 - Conceptual Deep Water Operations Plan
 - Deep Water Operations Plan (DWOP)
 - Welding Plan [Subpart A]
 - Sulphur Production System Application [Subpart P]
 - Fuel Gas Safety System Application [Subpart P]
- Leasing
 - Lease Suspension Request
 - Competitive Reservoir Determination
 - Voluntary Unitization Proposal or Unit Expansion
- Production
 - Temporary Storage Request
 - Surface Commingling Application
 - Production Approvals (Special Cases)
 - Facility Safety System Application (i.e., Production Safety System Application)
 - Gas Injection Application [Subpart A]
- Platform
 - Platform Approval Program Application
 - Platform Verification Program Plans/Documentation
- Pipeline
 - Pipeline Application
 - Right-of-Way Assignment

- Pipeline Repair Application/Plan
 - Pipeline Right-of-Way Grant Application
- Spill Response
 - Oil Spill Response Plan (OSRP)
- Decommissioning
 - Site Clearance Waiver
 - Structure Removal Application (initial)

A summary of the project tasks, as they were conducted, is included in Section 2.0.

1.3 Refinements of Project Scope

ICF conducted project tasks in accordance with the initial project scope of work with the exception of refinements from the initial project scope of work for Task 3, Task 5 and Task 6.

Under Task 3, ICF’s efforts to identify industry contacts currently working in offshore oil and gas licensing in the countries included in the scope of work were largely not successful; ICF interviewed industry contacts who have had recent experience with international permitting processes, including work with offshore oil and gas companies, but was not able to interview industry contacts who are currently working in licensing of offshore operations in these countries.

As the assessment of alternatives work proceeded under Tasks 4 and 5, it became clear that no single alternative identified under Tasks 1 to 3 would in and of itself be an appropriate approach for a significant shift in BSEE’s approach to permitting. Rather if BSEE does move forward with a shift in its approach to permitting, the path forward will require the adoption of a combination of elements of a number of the individual permitting alternatives identified. As such, combinations of alternatives (and variations within those combinations) were identified for consideration.

The initial scope of Task 5 was to conduct a detailed comparative analysis of alternatives to BSEE’s current permitting and oversight programs. Based on assessment of alternatives conducted in Task 4, an initial comparative evaluation of alternatives conducted in Task 5, and discussions with BSEE, a single alternative was selected and the remainder of Task 5 focused on preparing a detailed analysis of that single alternative, the combined plan-based approach, as a preferred alternative. The combined plan-based approach alternative includes the plan-based approach (risk-based plans), notification program, and permit-by-rule program, and third-party audit program. The revised Task 5 scope also included development of a conceptual methodology for BSEE to conduct a “pilot program” with one or more offshore operators (applicants) to implement the combined plan-based alternative. Assessment of a pilot program was not included in the initial Task 5 scope of work.

A separate detailed report for (separate from this report) describing the preferred alternative and pilot program implementation was prepared for BSEE.

2.0 Summary of Project Tasks

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

In Task 1, ICF developed an overview of permitting and oversight programs for each U.S. and international jurisdiction included in the project scope, with the objective of identifying potential alternatives within each evaluated program, and applying four criteria to evaluate and compare these alternatives: Efficiency; Effectiveness; Suitability for Purpose; and Feasibility of Implementation.

2.2 Task 2 – Review “Notification” Processes for PSA and HSE

In Task 2, ICF conducted a more detailed review of offshore licensing programs being applied in the United Kingdom (HSE) and Norway (PSA), using the same evaluation criteria as in Task 1. ICF developed a summary grid comparative analysis of alternatives and selected a subset of the alternatives evaluated for further detailed analysis.

2.3 Task 3 – Discussion with Companies on Regulatory Permits

In Task 3, ICF conducted interviews with representatives of private sector firms that have had experience with the international licensing and regulatory programs for offshore operations. The main objective for conducting the interviews was to gain “real world” insight as to how agencies are applying their programs and how companies are navigating the licensing process. A total of 12 interviews (and 5 follow up discussions) were conducted with representatives with working knowledge of licensing and regulatory programs in jurisdictions including Australia, Brazil, Canada, Mexico, Netherlands, Norway, and the United Kingdom.

2.4 Task 4 - Viability and Safety Analysis of Alternatives

Based on the results of the Task 1 and Task 2 Alternatives Assessment and Task 3 Interviews ICF conducted a further qualitative assessment in Task 4 of a subset of the identified alternatives to assess their viability. In Task 4, ICF refined the evaluation criteria and included a screening of “non-viable” alternatives from further consideration and evaluation in subsequent tasks. The screening analysis was applied to eliminate from further consideration only alternatives that either were clearly not viable for BSEE to implement (e.g., due to lack of existing BSEE legal authority to do so) or that clearly would not support BSEE’s overall responsibilities as a regulatory agency (e.g., the alternative would conflict with BSEE’s management principles or strategic goals). Alternatives that could potentially provide only “marginal” benefits and alternatives that could potentially be “difficult” for BSEE to implement were not eliminated from further consideration under Task 4.

2.5 Task 5 – Qualitative Assessment of Methods and Recommendations of Options

In Task 5, ICF initially evaluated the alternatives recommended for further assessment in Task 4 to develop recommended options for application of the alternatives to BSEE. The initial Task 5 assessment resulted in selection of specific combinations of alternatives for further evaluation in Task 5. As discussed in Section 1.3 above, based on the assessment of alternatives conducted in Task 4, the initial comparative evaluation of alternatives conducted in Task 5, and discussions with BSEE, Task 5 focused on detailed assessment of a single alternative, the combined plan-based approach, as a preferred

alternative. This included an assessment of the potential benefits of the combined alternative both to BSEE and offshore operators, limitations of the alternative, and best practices and opportunities for improvement for the licensing programs evaluated. As discussed above, Task 5 also included an assessment of implementation of the combined plan-based approach through a pilot program.

2.6 Task 6 –Draft and Final Project Report

This Task 6 report provides a summary of the scope of work, methodology, and results of Tasks 1 through 5 and recommendations for BSEE.

3.0 Identification and Assessment of Alternatives

3.1 Identification of Alternatives

Offshore licensing programs applied by regulatory agencies in Australia, Brazil, Canada (Atlantic), Denmark, Mexico, Netherlands, New Zealand, Norway, and the United Kingdom, as well as U.S. Federal agencies (e.g., the Bureau of Land Management and the Nuclear Regulatory Agency), were reviewed in Task 1. A more detailed review was conducted for licensing programs applied by the U.K. HSE Agency and the Norwegian PSA in Task 2.

Profiles of each U.S. and international program were provided in the Task 1 Deliverables BSEE Permits, Approvals and Process Alternativesⁱ for Norway, New Zealand, Australia, The Netherlands, Denmark, Canada Nova Scotia, Canada Newfoundland and Labrador, the United States, including the Federal Aviation Administration, Environmental Protection Agency, Nuclear Regulatory Commission, Bureau of Land Management, and Occupational Safety and Health Administration. Each program profile provided a summary of the program's offshore oil and gas regulations, alternatives identified in each U.S. and international program to BSEE's current permit, approval, and oversight processes, areas identified for further research, and implications of the alternatives identified for BSEE with respect to efficiency, effectiveness, suitability, and feasibility of implementation.

Alternatives identified in the review of U.S. and international programs in Task 1 were grouped into several broad categories. A summary of Task 1 Alternatives was provided in the Task 1 Deliverable *Summary of Alternatives*.ⁱⁱ The alternatives identified in the reviews of U.S. and international programs were organized into 14 categories. The alternative categories include risk-based approaches to permitting and approvals, plan-based approaches to permitting, performance (risk)-based standards, several alternatives for the types of permits issued, schedule and process for permit issuance, several alternative approaches to permitting agency organization, and approaches for applicant-provided agency funding. The following 14 alternative categories were identified:

1. Safety Case/Risk Assessment
2. Plan-based Approach
3. Performance-Based Standards
4. Time-bound Permit Application Review
5. Multi-level Permit
6. Notification/Permit-By-Rule

7. Multiple-Well Permit Application
8. Pre-application Consultation
9. Multi-Agency Regulation/Sole Regulatory Authority
10. Third-Party Audits
11. Applicant-provided Agency Funding
12. Combined Permit
13. Self-Regulation
14. Work Permit System

Research conducted into U.S. and international programs did not identify substantive differences that presented alternatives for consideration among U.S. and international programs related to royalties and research conducted into U.S. and international programs did not identify lease provisions corresponding to BSEE's provisions for lease suspension. No alternatives that would directly apply to royalties or lease programs were identified in Task 1 research.

3.2 Initial Assessment of Alternatives

Four evaluation criteria were applied to the alternatives identified by the review of the regulatory programs in Task 1 and Task 2: efficiency, effectiveness, suitability for purpose, and feasibility of implementation. The evaluation criteria are defined in the Task 2 Deliverable *Summary of BSEE Permit Alternatives*.ⁱⁱⁱ This February 19, 2015 deliverable provides a description of each alternative category and an assessment of the potential effects of each alternative approach on efficiency and effectiveness for BSEE and for operators, an assessment of the suitability for purpose of each alternative approach, and an assessment of implications for BSEE for implementation of the alternative.

3.3 Detailed Assessment of U.K. HSE and Norway PSA Programs

ICF conducted a more detailed review of licensing programs applied by the U.K. Health and Safety Executive (HSE) Agency and the Norwegian Petroleum Safety Authority (PSA) in Task 2. Detailed summaries of the U.K. HSE Program, which is based on a safety case approach, and the Norway PSA Program, which is based on a probabilistic risk assessment approach, are provided in the Task 2 Deliverables *Task 2 – Exploration of Permitting Alternatives Identified for Offshore Oil and Gas Regulation in the United Kingdom*^{iv} and *Task 2 – Exploration of Permitting Alternatives Identified for Offshore Oil and Gas Regulation in Norway*.^v

The UK HSE program and Norway PSA Program were evaluated using the four evaluation criteria in the Task 2 Deliverable *Permitting Alternatives Identified for Offshore Oil and Gas Regulation, UK and Norway – Summary*.^{vi} Key findings of the Task 2 evaluation of the HSE and PSA programs are the following:

- 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.

Based on evaluation of the differences in approach of the U.K. HSE and the Norway PSA in Task 2, the "safety case / risk assessment" alternative category was divided into two alternatives, a "safety case" approach and a "probabilistic risk assessment" approach, for further evaluation under Task 4 and Task 5.

Evaluation of the safety case/risk assessment approach in Task 2 also indicated that application of a safety case or probabilistic risk assessment approach alone would not meet the suitability for purpose criterion, and that these alternatives (and the plan-based approach alternative) would need to be combined with other alternatives (e.g., notification, permit-by-rule, third-party auditing) in order to meet the suitability criterion. Alternative combinations were developed and further evaluated in Task 4.

3.3 Interviews by Subject Matter Experts

In Task 1 ICF developed a preliminary list of candidate companies that are subject to permit processes and notification processes for the countries /regions of interest to BSEE, to identify potential candidates for company interviews under Task 3. A list of companies and trade groups was generated under Task 1, and updated under Task 3, with an objective of providing a representative sample of types of companies (e.g., small, large, private sector, state-owned) to contact with questions on how various approaches work in practice. Candidate lists of companies were provided in the Task 1 Deliverable *BSEE Permits, Approvals, and Process Alternatives – Candidate Companies for Task 3 Interviews*.^{vii}

ICF Subject Matter Expert attempts to identify contacts at companies identified in Task 1 were largely unsuccessful. Industry contacts *currently* working in licensing for offshore installations were not available for interviews; ICF SMEs therefore conducted interviews with knowledgeable individuals with experience in offshore licensing, but not currently involved in the licensing process at the specific target firms. ICF developed an interview framework for SMEs to use in conducting the interviews. ICF summarized the results of the interviews in the Task 3 Deliverable *Permit Alternatives and Assessment Study*^{viii} and the Task 3 Deliverable *Summary of Discussions with Companies on OCS Regulatory Permits*.^{ix}

Key findings of the Task 3 interviews with subject matter experts are the following:

- The U.S. approach to offshore oil and gas permitting is not considered progressive
- Prescriptive nature of U.S. regulations limits the ability of industry to innovate
- U.S. “black-letter law” approach may ensure that industry does not do less than required, but also ensures that industry would not do more than required either
- Prescriptive regulations also require a larger enforcement presence than alternatives
- Alternative processes place burden of proof on the operator to demonstrate safety; operator must demonstrate that any new technology applied meets (at minimum) the safety objectives set out by the regulatory agency
- Multi-national firms are already familiar with performance-based and risk-based alternative approaches being used (e.g., Australia, Brazil, Norway, and U.K.)
- Administrative shift from prescriptive approach to performance/risk-based approach has already been successfully accomplished in other countries; U.S. would not need to shift to performance/risk-based standards “all at once” e.g., establish performance-based requirements for a few components to start
- Interviewees were strong proponents of safety case approach and less inclined towards quantitative risk assessment approaches; the Australia approach combines safety case and conventional permits; potential model for BSEE rather than the hierarchal U.K. HSE approach
- U.K. HSE and (to a larger extent) Norway PSA are based on guidance documents rather than on prescriptive regulations; this represents a fundamental shift from BSEE’s much more detailed regulations
- BSEE regulations and guidance document development process to implement a risk-based alternative would take several years to complete even under ideal conditions
- Some interviewees were skeptical that either BSEE or operators could move towards a system in which BSEE doesn’t direct operators by regulation as to exactly what to do and exactly what not to do; this would be a cultural as well as a technical shift in focus for both BSEE and operators.

3.4 Assessment of Alternatives - Revised Evaluation Criteria

In Task 4 ICF conducted a more detailed assessment of the alternatives developed in Task 1, and an assessment of combinations of these alternatives, by applying revised evaluation criteria. The evaluation criteria were modified and expanded upon as the project progressed during to conversations with BSEE and the SME interviews conducted in Task 3. The definitions of the four evaluation criteria applied in Task 1 were revised based on information obtained from Task 3 interviews. Two additional evaluation criteria, consistency with BSEE management principles, and consistency with BSEE's strategic goals, were added based on discussions with BSEE. The revised and expanded evaluation criteria are described in the Task 4 Deliverable - *Viability and Safety Assessment of Alternatives*.^x

Based on the revised evaluation criteria, five alternatives were not recommended for further evaluation: Time-bound Permit Application Review, Multi-Agency Regulation, Sole Regulatory Authority, Self-Regulation, and Work Permit System. These alternatives did not meet certain evaluation criteria that would allow them to be implemented by BSEE, were not consistent with BSEE's strategic goals, or consistent with BSEE management principles. The remaining alternatives and combinations of these alternatives were further evaluated in Task 5.

3.5 Comparison of Alternatives with BSEE Permit and Oversight Programs

This section describes the combination of the 10 alternatives that resulted from the Task 4 process into a smaller number of "combined alternatives" and evaluation of the combined alternatives with respect to the existing BSEE permit and oversight programs. This section also summarizes the Task 4 deliverable and summarizes the outcome of the Task 4 Project Meeting.

Ten alternatives were moved in the evaluation process to be compared with existing BSEE permit and oversight programs: Safety Case, Quantitative Risk Assessment, Plan-based Approach, Multi-level Permit, Combined Permit, Performance-Based Standards, Notification/Permit-by-Rule, Pre-application Consultation, Third-Party Audits, and Applicant-provided Agency Funding. Three of the alternatives (Safety Case, Quantitative Risk Assessment, and Plan-Based Approach) were combined with other alternatives as "combined alternatives" and compared to the existing BSEE permit and oversight programs. Comparisons were made to existing administrative, exploration and production, development, leasing, platforms, pipelines, spills, and decommissioning regulatory programs.

In Task 5 ICF developed a description of each of the 10 discrete alternatives from Task 4 and descriptions of the combined alternatives that were proposed to be evaluated using the Task 5 evaluation criteria. The descriptions outline the discrete elements of each combined alternative and how the discrete elements would be combined and implemented as a combined alternative. Definitions of alternative combinations are provided in the Task 5 Deliverable – *BSEE Permitting Alternatives Task 5 Step 1 and Step 2 Deliverables*.^{xi} This deliverable includes a series of tables for each combined alternative that outline the specific BSEE permitting and regulatory oversight elements identified in Task 1 (e.g., APD, DWOP) and a brief assessment of how each alternative combination would affect each BSEE permitting and regulatory oversight element. The purpose of the Task 5 Step1 Deliverable was for BSEE to review

the definitions and preliminary assessments of the discrete alternatives and alternative combinations prior to applying the Task 5 evaluation criteria.

4.0 Identification and Assessment of Combined Plan-based Approach

4.1 Selection of Combined Plan-based Approach as the “Preferred Alternative”

ICF presented the results of the Task 4 and Task 5 Step 1 analyses in the Task 5 project meeting presentation *Permit Alternatives and Assessment Study*^{xii} and the Task 5 deliverable – *Task 5 Meeting Notes and Moving Forward*.^{xiii} Task 4 assessed the viability of the alternatives developed in previous tasks, resulting in the removal of five alternatives from consideration. Task 5 Step 1 assessed the remaining 10 alternatives, in various combinations. The three principal alternative approaches to BSEE approval of offshore operations resulting from the Task 4 and Task 5 analysis are the safety case approach, the quantitative risk assessment approach, and the plan-based approach.

Based on the Task 4 and Task 5 Step 1 analysis and Task 5 project meeting discussion, BSEE direction for the revised Task 5 scope and the Task 6 report was for ICF to develop a single recommended approach. BSEE would potentially apply this recommended approach as a conceptual demonstration (“pilot project”) of an alternative approvals process that an offshore operator would participate in, in lieu of BSEE’s current permitting and regulatory oversight framework. This direction from BSEE represented a departure from the original scope of work of Task 5, which envisioned a detailed comparative evaluation of multiple alternatives in Task 5.

Based on BSEE direction ICF developed a combined plan-based alternative approach for further evaluation in Task 5 and potential implementation by BSEE as a pilot project. ICF provided a draft description of the combined plan-based approach in the Task 5 deliverable – *Summary Description of the Alternative Scope*.^{xiv} The combined plan-based approach developed for further evaluation in Task 5 and potential application by BSEE includes risk-based plan submittals, a notification process, and a permit-by-rule process. [Based on subsequent discussion with BSEE in the second Task 5 project meeting, a third-party audit program has been added to the combined plan-based approach for further evaluation and potential BSEE application as a pilot program.]

BSEE identified the combined plan-based approach as the preferred alternative based on the application of the six evaluation criteria to the individual alternative components of the combined alternative in Task 4 and the application of the six evaluation criteria to the combined alternative in the initial phase of Task 5. The rationale for the selection of the combined plan-based approach is summarized in the Task 5 Deliverable *Permit Alternatives and Assessment Study*.^{xiii} The selection rationale included consideration of the feasibility of implementation of the three “risk-based” alternatives, safety case, quantitative risk assessment, and plan-based approach. BSEE expressed the view that a “pure safety case” approach, i.e., the UK HSE approach, or a quantitative risk assessment approach, e.g., the Norway PSA approach, would not be feasible for BSEE to adequately staff or implement effectively, and that from both technical and administrative perspectives it would be more feasible for BSEE to develop an alternative program using the BSEE’s existing plan-based framework as a foundation. BSEE requires plan submittals (e.g., DWOP, OSRP) as part of the current BSEE permitting program. BSEE expressed the view

of incorporating *elements of* the safety case approach and quantitative risk assessment approach into an alternative program that is based on plan submittals.

4.2 Structure of the Combined Plan-based Approach Alternative

ICF developed an initial definition of the combined plan-based approach in the Task 5 Deliverable *Summary Description of the Alternative Scope* (September 16, 2015).^{xiv} This deliverable provided a conceptual outline of plans that would be included in the plan-based approach, an overview of the information requirements for BSEE permit and oversight programs that have the potential to fall within the scope of the plan based approach alternative, and how information required to be submitted to BSEE for each permit and oversight program could be integrated into one or more plan submittals under the plan-based approach alternative. The deliverable also identified BSEE permit and oversight programs that could potentially be incorporated into the notification program and permit-by-rule program that are components of the combined plan-based approach.

The combined plan-based approach alternative to current BSEE permitting and approvals envisions that operators would submit installation-based plans describing one or multiple phases of proposed offshore operations. The plan submittals would be risk-based, life-cycle based, and installation-specific. Risk-based plan submittals would identify risks that are associated with the activities covered by the plan, define ALARP for each identified risk, identify systems and barriers to control and mitigate each identified risk to ALARP, and describe how risk mitigation systems and barriers would be managed to control and reduce risk. Plan submittals would be reviewed by BSEE based on pre-established evaluation and decision-making criteria, and either approved, or returned to the operator for revision. Approval would constitute authorization for the operator to conduct the activities described in the plan thereby negating the need for separate/ itemized permits and approvals associated with those activities.

The plan-based approach alternative envisions that the review process and decision making criteria applied by BSEE would differ markedly from BSEE's current processes and procedures for reviewing and approving plan submittals (e.g., DWOPs, OSRPs) and permit applications (e.g., APD, APMs.) In a plan-based approach alternative BSEE would no longer conduct reviews of discrete submittals by applying a "checklist" of prescriptive review and approval criteria, but rather would review plan submittals using a systems-based approach and applying risk-based decision criteria.

The plan-based approach envisions that BSEE SMEs will review the existing regulations and standards with regard to identifying those specific regulations and standards that are relevant to BSEE's review process and decision-making criteria for review and approval of plan submittals, and identifying those specific regulations and standards that do not inform the plan review and approval process but rather relate to "routine operations" and "well-characterized operations" that could be incorporated into a "permit-by-rule" process or notification process that would part of the combined plan-based approach.

4.3 Description of the Combined Plan-based Approach Alternative

Based on BSEE comments on the Alternative Scope Outline deliverable, ICF developed a summary description of the combined plan-based approach alternative and an overview of how the combined approach could be implemented as a pilot program. The Task 5 Deliverable *Summary Description of the*

Alternative Approach to Permitting and Possible Pilot Program^{xv} describes the conceptual framework and characteristics of the combined plan-based approach and the relationship of the combined approach to the current BSEE permitting and oversight program, and provides an overview of risk analysis and risk-based decision making components of the plan-based approach.

The plan-based approach alternative envisions that BSEE would receive a relatively small number of submittals from applicants, rather than the large number of submittals BSEE receives under the current BSEE permitting and oversight program. BSEE would establish requirements for applicants to submit a set of integrated risk-based and life-cycle-based plan submittals that cover aspects of proposed offshore operations from conceptual design through decommissioning. The following example plans could be required under a plan-based approach:

- Conceptual Plan
- Pre-production Plan¹
- Operating Plan
- Response Plan
- Decommissioning Plan

The plan submittals would be risk-based, life-cycle based, and installation-specific. Risk-based plan submittals would:

- Identify risks that are associated with the activities covered by the plan
- Define ALARP for each identified risk
- Identify systems and barriers to control and mitigate each identified risk to ALARP
- Describe how risk mitigation systems and barriers would be managed to control and reduce risk

Also:

- Plan submittals would be reviewed by BSEE based on pre-established evaluation and decision-making criteria, and either approved, or returned to the operator for revision.
- Approval would constitute authorization for the operator to conduct activities described in the plan thereby negating the need for separate/itemized permits and approvals for those activities.

The plan-based approach alternative envisions that operators would no longer submit permit applications for discrete activities (e.g., Applications for Permits to Drill) but would instead submit:

- A smaller number of plan submittals than those plan and permit applications currently required
- Plans would be more highly integrated with one another than are permit applications and plans submittals currently required

¹ This plan was referred to as the “Development Plan” in the Task 5 deliverables; based on subsequent discussions with BSEE this plan has been retitled as the “Pre-production Plan” to avoid title duplication with the “Development Plan” that offshore operators are required to submit to BOEM.

- Plan submittals collectively would address substantive technical and management elements of the operator’s proposed approach.

The plan-based approach alternative also envisions that the review process and decision making criteria applied by BSEE would differ markedly from BSEE’s current processes and procedures for reviewing and approving plan submittals (e.g., DWOPs, OSRPs) and permit applications (e.g., APD, APMs.) Plan submittals would include identification of any new technologies, processes or approaches that applicants propose to include in their proposed offshore operations.

4.4 Comparative Analysis of Combined Plan-based Approach Alternative

The assessment of alternatives combinations in Task 4 and Task 5 included evaluation of the combined plan-based approach alternative and the other risk-based approaches, the safety case approach combined alternative and the quantitative risk assessment combined alternative, based on the six evaluation criteria developed in Task 4. ICF found in evaluating the three risk-based approaches using the six evaluation criteria that the combined plan-based approach meets each of the six evaluation criteria and that the combined plan-based approach compares favorably to the other “risk-based” alternatives using the six evaluation criteria.

A qualitative assessment of the combined plan-based approach alternative indicates that alone a plan based approach is not desirable, but as part of a combination represents the opportunity for a more efficient and effective approach to permitting and approvals than the status quo at BSEE. A plan-based approach without the notification and permit-by-rule components would not substantively improve efficiency or effectiveness for either BSEE or operators, and would not meet the criteria for evaluation of alternatives.

Of the alternative combinations identified for BSEE, this combination while a major change for BSEE and applicants, is believed to involve the least degree change in approach and is a better fit to BSEE’s already existing processes and requirements than either the safety-case approach alternative or the quantitative risk assessment approach alternative.

The comparison of the plan-based approach to the safety case and quantitative risk assessment alternatives considering the six evaluation criteria used for this project is summarized in Task 5 Deliverable, *Evaluation of Alternatives and Selection of Plan-based Approach*.^{xvi}

5.0 Pilot Program Development and Implementation

Based on the conceptual framework of the combined plan-based approach alternative, ICF developed a conceptual implementation plan for BSEE to implement the combined approach as a pilot program. The pilot program would involve a selected number of applicants applying for proposed offshore operations through the alternative approach rather than through BSEE’s current permitting and oversight program. BSEE would implement the pilot program to apply the alternative approach to selected applicants in order to develop, design, and evaluate the alternative approach. Applicants included in the pilot program would actively participate in the design and development of the alternative approach. BSEE would evaluate the pilot program using evaluation criteria conceptually similar to the criteria applied to

evaluate alternatives: efficiency, effectiveness, suitability for purpose, feasibility of implementation, and consistency with BSEE's strategic goals and objectives and management principles.

The conceptual implementation plan for the pilot program is described in detail in a separate report. The pilot program implementation plan includes a framework for BSEE development of a risk analysis and risk-based decision framework, plan outlines, and notification and permit-by-rule programs for BSEE application in a pilot program involving operator participants selected by BSEE based on pre-established participant selection criteria. The selected applicants would submit risk-based plans for their proposed operations, and BSEE would apply the combined plan-based approach in lieu of BSEE's existing permitting program. BSEE would apply the results of the pilot program to further develop and implement the combined plan-based approach. The envisioned pilot program implementation process including BSEE implementation, risk guidance framework development process, pilot program participant selection process, applicant selection criteria, and BSEE staffing and BSEE expectations of applicants.

6.0 Conclusions and Recommendations

Tasks 1 through 5 resulted in the selection and development of the combined plan-based alternative, and development of a conceptual pilot program implementation plan. ICF summarized the combined plan-based alternative in the presentation deliverable *Plan-based Approach Assessment and Pilot program Implementation*.^{xvii} The combined plan-based approach was found to meet the six alternative evaluation criteria and was found to be the alternative combination that is most consistent with BSEE's overall goals and objectives, and the most feasible for BSEE to implement.

Appendix A - Project Deliverables

This appendix presents a list of previous project deliverables (starting with the Task 1 country/agency reports) by document name, date and file name.

Document Name	Date	File Name
<i>BSEE Permits, Approvals, and Process Alternatives - The Netherlands, Draft</i>	November 6, 2014	Netherlands Profile BSEE Permit Alternatives Nov 6 draft.docx
<i>BSEE Task 1 Step 3 – Initial Comparison Criteria for Alternatives</i>	November 18, 2014	BSEE 80 Task 1 Step 3 – Criteria.docx
<i>BSEE Permits, Approvals, and Process Alternatives – Mexico</i>	December 15, 2014	Mexico Profile BSEE Permit Alternatives 12102014.docx
<i>BSEE Permits, Approvals, and Process Alternatives – Brazil</i>	December 15, 2014	Brazil Profile BSEE Permit Alternatives 12102014.docx
<i>BSEE Permits, Approvals, and Process Alternatives - U.S. Environmental Protection Agency</i>	December 15, 2014	US Environmental Protection Agency Profile BSEE Permit Alternatives 12102014.docx
<i>BSEE Permits, Approvals, and Process Alternatives - U.S. Nuclear Regulatory Agency</i>	December 15, 2014	US Nuclear Regulatory Agency Profile BSEE Permit Alternatives 12102014.docx
<i>BSEE Permits, Approvals, and Process Alternatives - Occupational Safety and Health Administration (OSHA)</i>	December 15, 2014	Occupational Safety and Health Admin Profile BSE Permit Alternatives 12-9-2014.docx
<i>BSEE Permits, Approvals, and Process Alternatives - United Kingdom</i>	December 15, 2014	UK Profile BSEE Permit Alternatives 110614 0 12-15-2014.docx
<i>BSEE Permits, Approvals, and Process Alternatives – Norway</i>	December 15, 2014	T1 Norway Profile BSEE Permit Alternatives – 12-15-2014.docx
<i>BSEE Permits, Approvals, and Process Alternatives – New Zealand</i>	December 15, 2014	T1 New Zealand Profile BSEE Permit Alternatives – 12152014.docx
<i>BSEE Permits, Approvals, and Process Alternatives – Australia</i>	December 15, 2014	T1 Australia Profile BSEE Permit Alternatives – 12152014.docx
<i>BSEE Permits, Approvals, and Process Alternatives – The Netherland</i>	December 15, 2014	T1 Netherlands Profile BSEE Permit Alternatives 12152014.docx
<i>BSEE Permits, Approvals, and Process Alternatives – Denmark</i>	December 15, 2014	T1 Denmark Profile BSEE Permit Alternatives 12152014.docx
<i>BSEE Permits, Approvals, and Process Alternatives – Canada Nova Scotia</i>	December 15, 2014	T1 Canada Nova Scotia BSEE Permit Alternatives 12152014.docx
<i>BSEE Permits, Approvals, and Process Alternatives - Canada Newfoundland and Labrador</i>	December 15, 2014	T1 Canada Newfoundland and Labrador Profile BSEE Permit Alternatives 12152014.docx
<i>BSEE Permits, Approvals, and Process</i>	December 15, 2014	US Bureau of Land Management Agency

Document Name	Date	File Name
<i>Alternatives - U.S. Bureau of Land Management</i>		Profile BSEE Permit Alternatives 12152014.docx
<i>BSEE Permits, Approvals, and Process Alternatives - U.S. Federal Aviation Administration</i>	December 15, 2014	US FAA Profile BSEE Permit Alternatives 12152014.docx
<i>Summary of Alternatives</i>	December 17, 2014	Alternatives summary 12-17-2014 formatted.docx
<i>BSEE Permits, Approvals, and Process Alternatives - Candidate Companies for Task 3 Interviews</i>	January 9, 2015	T1 Step 6 01-09-2015.docx
<i>Summary of BSEE Permit Alternatives</i>	February 19, 2015	Alternatives Summary Feb 19 2015.docx
<i>permitting Alternatives Identified for Offshore Oil and Gas Regulation, UK and Norway – Summary</i>	February 23, 2015	Task 2 Summary Analysis 02-23-2015.docx
<i>Task 2 – Exploration of Permitting Alternatives Identified for Offshore Oil and Gas Regulation in the United Kingdom</i>	February 23, 2015	UK Outline task 2 Feb 23 2015.docx
<i>Task 2 – Exploration of Permitting Alternatives Identified for Offshore Oil and Gas Regulation in Norway</i>	February 23, 2015	Norway Outline Task 2 Feb 23 2015.docx
<i>Task 3 Summary Grid</i>	March 10, 2015	Task 3 Summary Grid 03-09-2015-1.docx
<i>BSEE Task 3 Interview Objectives</i>	March 10, 2015	Task 3 SME Directions 03-09-2015.docx
<i>Draft Interview Questions</i>	March 10, 2015	Draft Interview Questions BSEE Permit Alternatives Task 3_03-09-2015-1.docx
<i>Memorandum Re: Task 3 Interviews: Status and Potential Approach Refinements</i>	April 21, 2015	Task 3 interviews status and potential approach refinements 04-21-2015.docx
<i>Permit Alternatives and Assessment Study</i>	May 27, 2015	BSEE May 2015 Presentation 05-2-2015.pptx
<i>Viability and Safety Assessment of Alternatives</i>	May 29, 2015	Task 4 Evaluation Criteria.docx
<i>summary of Discussions with Companies on OCS Regulatory Permits</i>	June 26, 2015	Task 3 Discussion with Companies on Regulatory Permits June 26 2015.docx
<i>BSEE Permitting Alternatives Task 5 Step 1 and Step 2 Deliverables</i>	August 5, 2015	Alternatives Permit Matrix 08-05-2015.docx
<i>Permit Alternatives and Assessment Study</i>	August 18, 2015	BSEE August 2015 Presentation 08-13-2015a.pptx
<i>Task 5 Meeting Agenda - August 18, 2015 11:00 AM</i>	August 17, 2015	Proposed Meeting Agenda 08-18-2015a.docx
<i>Task 5 Meeting Notes and Moving</i>	August 21, 2015	Task 5 Meeting Notes and Moving

Document Name	Date	File Name
<i>Forward</i>		Forward.docx
<i>Summary Description of the Alternative Scope</i>	September 16, 2015	Alternative Scope Outline.docx
<i>Summary Description of the Alternative Approach to Permitting and Possible Pilot Program, Draft Report</i>	September 21, 2015	Summary Description of the Alternative Approach to Permitting and Possible Pilot Program 09-21-2015.docx
<i>Permit Alternative and Assessment Study</i>	September 24, 2015	Alternatives Summary Report annotated outline.docx
<i>DRAFT Description of the Alternative Approach to Permitting and Possible Pilot Program, Draft Report</i>	October 8, 2015	Alternative Description_Oct_8_15_draft.docx
<i>Plan-based Approach Assessment and Pilot Program Implementation</i>	October 9, 2015	BSEE October 2015 Presentation 10-13-2015 V1.pptx
<i>Evaluation of Alternatives and Selection of Plan-based Approach</i>	October 16, 2015	Plan based Alternative Evaluation 10-16-2015.docx

Appendix B – References

- ⁱ ICF International. 2014. BSEE Permits, Approvals, and Process Alternatives – Norway. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 12 pages.
- ICF International. 2014. BSEE Permits, Approvals, and Process Alternatives – New Zealand. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 9 pages.
- ICF International. 2014. BSEE Permits, Approvals, and Process Alternatives – Australia. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 17 pages.
- ICF International. 2014. BSEE Permits, Approvals, and Process Alternatives – The Netherlands. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 6 pages.
- ICF International. 2014. BSEE Permits, Approvals, and Process Alternatives – Denmark. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 8 pages.
- ICF International. 2014. BSEE Permits, Approvals, and Process Alternatives – Canada Nova Scotia. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 9 pages.
- ICF International. 2014. BSEE Permits, Approvals, and Process Alternatives – Canada Newfoundland and Labrador. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 8 pages.
- ICF International. 2014. BSEE Permits, Approvals, and Process Alternatives – U.S. Bureau of Land Management. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 5 pages.
- ⁱⁱ ICF International, 2014. Summary of Alternatives. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 39 pages.
- ⁱⁱⁱ ICF International. 2015. Summary of BSEE Permit Alternatives. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 46 pages.
- ^{iv} ICF International. 2015. Task 2 – Exploration of Permitting Alternatives Identified for Offshore Oil and Gas Regulation in the United Kingdom. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 32 pages.
- ^v ICF International. Exploration of Permitting Alternatives Identified for Offshore Oil and Gas Regulation in Norway. 2015. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 21 pages.
- ^{vi} ICF International. 2015. Permitting Alternatives Identified for Offshore Oil and Gas Regulation, UK and Norway – Summary. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 22 pages.
- ^{vii} ICF International. 2015. BSEE Permits, Approvals and Process Alternatives – Candidate Companies for Task 3 Interviews. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 4 pages.
- ^{viii} ICF International. 2015. Permit Alternatives and Assessment Study. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 30 pages.
- ^{ix} ICF International. 2015. Summary Discussions with Companies on OSC Regulatory Permits. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 24 pages.
- ^x ICF International. 2015. Viability and Safety Assessment of Alternatives. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 3 pages.
- ^{xi} ICF International. BSEE Permitting Alternatives Task 5 Step 1 and Step 2 deliverables. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 30 pages.

^{xii} ICF International. 2015. Permit Alternatives and Assessment Study. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 14 pages.

^{xiii} ICF International. 2015. Task 5 Meeting Notes and Moving Forward. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 4 pages.

^{xiv} ICF International. 2015. Summary Description of the Alternative Scope. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 14 pages.

^{xv} ICF International. 2015. Summary Description of the Alternative Approach to Permitting and Possible Pilot Program. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 23 pages.

^{xvi} ICF International, 2015. Evaluation of Alternatives and Selection of Plan-based Approach. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement, 42 pages.

^{xvii} ICF International. 2015. Plan-based Approach Assessment and Pilot Program Implementation. U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement. 14 pages.