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OIL SPILL PREPAREDNESS, PREVENTION, AND RESPONSE ON THE ALASKA OCS

US Department of the Interior
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ABOUT THE COVER

Top: Shell conducts oil spill equipment deployment exercises in Port Valdez before beginning the 2015 drilling season in the Chukchi Sea. Photo by Steve Pearson, BSEE.
Bottom left: Alaska Clean Seas technicians deploy a disc skimmer alongside a spill response vessel during a Government Initiated Unannounced Exercise of the BP Alaska Greater Prudhoe Bay Oil Spill Contingency Plan in July 2018. Photo by Steve Pearson, BSEE.
Bottom right: Alaska Clean Seas, Eni, and Caelus spill response teams deploy a drum skimmer during a 2016 BSEE Government Initiated Unannounced Exercise for a simulated oil spill under ice in the Beaufort Sea. Photo by Christy Bohl, BSEE.

PURPOSE

The purpose of this document is to help readers understand oil spill preparedness, prevention, and response on the Alaska OCS. The information is provided as a general summary and is not intended to be a complete statement of the law in respect to the rights and liabilities of polluters and those damaged by pollution. This information does not constitute a regulation and may not be relied upon to create a right or benefit, substantive or procedural, enforceable by law or in equity by any person.

REVISION HISTORY

Publication Date	Revision Purpose
April 2019	Initial Publication

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List of Abbreviations and Acronyms

ACS	Alaska Clean Seas
ADEC	Alaska Department of Environmental Conservation
ARRT	Alaska Regional Response Team
AS	Alaska Statute
ATV	all-terrain vehicle
BOEM	Bureau of Ocean Energy Management
BOEMRE	Bureau of Ocean Energy Management Regulation and Enforcement
BSEE	Bureau of Safety & Environmental Enforcement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CISPRI	Cook Inlet Spill Prevention & Response, Inc.
CWA	Clean Water Act
EO	Executive Order
FOSC	Federal On-Scene Coordinator
GIUE	Government Initiated Unannounced Exercise
MMS	Minerals Management Service
NOAA	National Oceanic and Atmospheric Administration
NTL	Notice to Lessees
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
OHMSETT	Oil and Hazardous Materials Simulated Environmental Test Tank
OPA	Oil Pollution Act of 1990
OSFR	Oil Spill Financial Responsibility
OSLTF	Oil Spill Liability Trust Fund
OSPD	Oil Spill Preparedness Division (BSEE)
OSRO	oil spill removal organization
OSRP	Oil Spill Response Plan
OSRR	Oil Spill Response Research
PHMSA	Pipeline and Hazardous Materials Safety Administration
RCRA	Resource Conservation and Recovery Act
SOSC	State On-Scene Coordinator
USCG	United States Coast Guard
USDOI	United States Department of the Interior
USEPA	United States Environmental Protection Agency

1 INTRODUCTION

The governing framework for oil spills in the United States is a combination of various federal, state, and international authorities. Accidental oil spills are managed through various institutional frameworks composed of laws, conventions, regulations, policies, procedures, and response management systems at all levels of government and industry (Walker, 2017). Within these frameworks, several federal agencies have the authority to implement oil spill regulations. Ramseur (2017) divided agency responsibility into two broad categories: (1) oil spill prevention and preparedness, and (2) oil spill response and cleanup. Further, institutional frameworks establish the decision-making approaches, organizational roles, and responsibilities used during spill preparedness and response to manage oil spills (Bearden and Ramseur, 2017; Fingas, 2011a). These federal, state, and international authorities and the National Response System set the stage for how the U.S. Department of the Interior (USDOI), Bureau of Safety and Environmental Enforcement (BSEE) and Bureau of Ocean Energy Management (BOEM) specifically address oil spill prevention, preparedness, response plans, and response initiatives on the Outer Continental Shelf (OCS).

2 FEDERAL AUTHORITIES

A complex framework of laws, executive orders, and regulations govern oil spills and oil spill response. The National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR part 300), often referred to as the National Contingency Plan, establishes the procedures for the federal response to oil and chemical spills. The scope of the National Contingency Plan specifically encompasses discharges of oil into or upon U.S. waters and adjoining shorelines and releases of hazardous substances into the environment.

Bearden and Ramseur (2017) and Appendix A summarize the federal response authorities that Congress expanded over time resulting in multiple revisions to the original 1968 National Contingency Plan. Three major federal environmental statutes authorize the development of the National Contingency Plan:

- The Clean Water Act (CWA) (33 U.S.C. §§ 1251-1387), as amended
- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (42 U.S.C § 9605), as amended by the Superfund Amendments and Reauthorization Act of 1986, Public Law 99-499
- The Oil Pollution Act (OPA) of 1990 (33 U.S.C. §§ 2701 *et seq.*)

The 1972 amendments to the CWA, in addition to other revisions, added Section 311 (33 U.S.C. §1321). The original National Contingency Plan focused on the federal response to oil spills. Section 311 directed the President to further develop the National Contingency Plan to govern discharges of both oil and hazardous substances, including mechanisms to coordinate the federal, state, and local roles in responding to an incident, and specific response procedures.

Additionally, CERCLA, the Resource Conservation and Recovery Act (RCRA), the Outer Continental Shelf Lands Act (OCSLA), OPA, and the Foreign Spill Protection Act further expanded the regulatory mandates for responding to or reporting oil spills. CERCLA significantly broadened the scope of hazardous substance spill reporting and response. It specifically requires spillers to immediately notify the National Response Center in the event of a release of a reportable quantity of a hazardous substance to the environment and sets penalties for failure to provide notification as required (42 U.S.C. § 9603).

RCRA addresses issues pertaining to hazardous waste management, which includes oily waste from oil spill cleanup (42 U.S.C. §§ 6901 *et seq.*). RCRA requires an Environmental Protection Agency (USEPA) identification number for generators, transporters, and disposers managing hazardous waste generated in

the course of oil spill response activities. It also requires use of appropriate hazardous waste manifests to create a "cradle-to-grave" audit trail to ensure proper disposal at an approved treatment, storage, and disposal facility.

OCSLA and its subsequent amendments (43 U.S.C. §§1331-1356) provide the foundation for regulations currently implemented by BOEM and BSEE. Governing offshore oil development and operations in federal jurisdictional waters, sections of these regulations (30 CFR parts 250, 254, 550, 553 and 556) specifically address oil spill prevention and response by requiring specific equipment and procedures at offshore facilities.

OPA improved oil spill prevention, preparedness, and response capability; established limitations on liability for damages resulting from oil pollution; and implemented a fund for the payment of compensation for such damages (33 U.S.C. §§ 2701 *et seq.*). New oil spill preparedness requirements were set forth for the federal government and the facility plan holder operating in offshore marine waters, and the existing federal planning and response framework was expanded in several ways (see Appendix A). The provisions of OPA required further development of the National Contingency Plan, providing for an efficient, coordinated, and effective action to minimize damage to the environment in the event of a release.

The Foreign Spill Protection Act of 2017 expanded OPA and portions of the CWA to hold foreign-based offshore facilities liable for spills entering waters of the United States. Specifically, the amendments make clear that "any person owning or operating" a foreign facility, and "any leaseholder, permit holder, assignee, or holder of a right-of-use and easement granted under applicable foreign law for the area in which the facility is located," is a "responsible party" for purposes of OPA and CWA liability. Through these amendments, Congress sought to protect the United States from damages caused by foreign-based offshore operations and to ensure that the government has a basis for redress (Pullman and Cavender, 2018).

Bearden and Ramseur (2017) summarized several executive orders that delegated the presidential response authorities of these statutes to federal departments and agencies tasked with implementing the National Contingency Plan. Specifically, Executive Order (EO) 12777, issued in 1991, delegated the President's authorities to respond to discharges of oil under Section 311 of the CWA, as amended by OPA. Under this EO, USDOI has responsibility for the following:

- Establishment of procedures, methods, equipment, and other requirements for containing discharges of oil and hazardous substances from offshore facilities, including associated pipelines, other than deepwater ports
- Issuance of regulations requiring owners or operators of offshore facilities, including associated pipelines, to prepare and submit response plans
- Approval of means to ensure the availability of private personnel and equipment
- Review and approval of such response plans
- Authorization of offshore facilities, including associated pipelines, to operate without approved response plans
- Authorization for periodic inspection of containment booms and equipment used to remove discharges at offshore facilities, including associated pipelines, other than deepwater ports

The USDOI delegated oversight of oil spill planning and response to BSEE, which promulgated regulations governing oil spill response requirements found at 30 CFR part 254, Oil-Spill Response Requirements for Facilities Located Seaward of the Coast Line.

On March 15, 2013, EO 13638 amended EO 12777 by replacing Section 4, Liability Limit Adjustment, in its entirety.

3 OIL POLLUTION ACT – LIABILITY AND COST

OPA consolidated the liability and compensation requirement of certain prior federal oil pollution laws and their supporting funds. Under OPA, Congress placed the primary burden of oil spill cleanup costs on the responsible party. OPA specifies that vessel owners, not cargo owners, are liable for spills and establishes certain dollar amounts above which a responsible party is not liable (see Appendix A). Further, the Oil Spill Liability Trust Fund (OSLTF) was created to offset cleanup costs when the responsible party is incapable or unwilling to pay. In addition, the Oil Spill Financial Responsibility program requires the responsible party to provide evidence of financial coverage.

3.1 Oil Spill Liability Trust Fund

The OSLTF provides necessary funding for oil spill removal, natural resource damage assessment, and restoration, as well as compensation to authorized claimants (USCG, 2006). Congress established the OSLTF in 1986. Authorized under OPA, the OSLTF consolidated the use of money and collection of revenue necessary to maintain the fund. The consolidated funds included the CWA § 311(k) revolving fund; the Deepwater Port Liability Fund; the Trans-Alaska Pipeline Liability Fund; and the Offshore Oil Pollution Compensation Fund. On February 20, 1991, OSLTF administration was delegated to the U.S. Coast Guard (USCG) by EO 12777. With the consolidation of these funds and the collection of a 9-cent per barrel tax on the petroleum industry, the OSLTF increased to more than $6 billion in FY 2018 (Ramseur, 2017, Figure 6). Fund uses as delineated by OPA include:

- removal costs incurred by the USCG and USEPA;
- state access for removal activities;
- payments to federal and state agencies and Indian tribe trustees to conduct natural resource damage assessments and restorations;
- payment of claims for uncompensated removal costs and damages;
- research and development; and
- other specific appropriations.

Several federal organizations, including BSEE, receive annual specific OSLTF appropriations authorized under OPA Section 1012(a)(5) (33 U.S.C. 2712(a)(5)). The use of the funds under Section 1012 (a)(5) are for federal administrative, operations, and personnel costs and expenses reasonably necessary for and incidental to the implementation, administration, and enforcement of OPA. BSEE's use of the OSLTF includes oil pollution research, operation and maintenance of the National Oil Spill Response Test Facility, regulation and enforcement of oil spill response plans, and personnel costs (USCG, 2018).

3.2 Oil Spill Financial Responsibility

To preserve the OSLTF and ensure that the responsible party(ies) can be held accountable for oil spill cleanup and damages, OPA requires that vessels and operators/owners for all Covered Offshore Facilities (see Appendix A) provide evidence of Oil Spill Financial Responsibility (OSFR) (e.g., insurance). The OSFR program monitors the capability and means by which a responsible party will meet removal costs and damages for which it is liable under Title I of OPA, as amended (33 U.S.C. § 2701 *et seq.*), with respect to both oil spill discharges and substantial threats of the discharge of oil. The USCG's National Pollution Funds Center implements the financial responsibility provisions for vessels. For all Covered Offshore Facilities, BOEM reviews and monitors financial requirements for any responsible party(ies), as defined in 30 CFR part 553, OSFR for Offshore Facilities. A Covered Offshore Facility is determined by BOEM to require OSFR coverage if it: (1) has a potential worst case oil spill discharge volume of more than 1,000 barrels of oil or gas condensate, and (2) is located seaward of the coastline or in any portion of a bay that is connected to the sea either directly or through one more bays (30 CFR § 553.3).

Under the BOEM Notice to Lessees (NTL) 2008-N05, "Guidelines for Oil Spill Financial Responsibility for Covered Facilities," BOEM requires all responsible parties to provide evidence of financial coverage and to authorize a Designated Applicant to act on behalf of the responsible party(ies) to obtain a certification of OSFR (30 CFR part 553 subparts B and C). Under these regulations, BOEM considers the Designated Applicant to be strictly liable, jointly and severally, for all oil-spill removal costs and damages, in accordance with OPA. OSFR coverage is required on any lease, pipeline (permit), or right-of-use and easement. Penalties for noncompliance with these requirements are covered at 30 CFR § 553.51.

4 NATIONAL RESPONSE SYSTEM

The National Contingency Plan established the National Response System as a multi-tiered framework for coordinating federal response to a discharge of oil or a release of a hazardous substance, pollutant, or contaminant (Figure 1). The National Response System establishes the respective roles of federal, state, and local governments in carrying out a response, including the party(ies) responsible for the incident and other private entities that may wish to contribute resources (Bearden and Ramseur, 2017). Coordination efforts are accomplished through the development and maintenance of layered and interlocking contingency and response plans (Figure 2). The family of plans includes multiple levels to provide an integrated approach to responding to oil spill incidents. Plans under the National Response System authorities are required under regulation to be consistent.

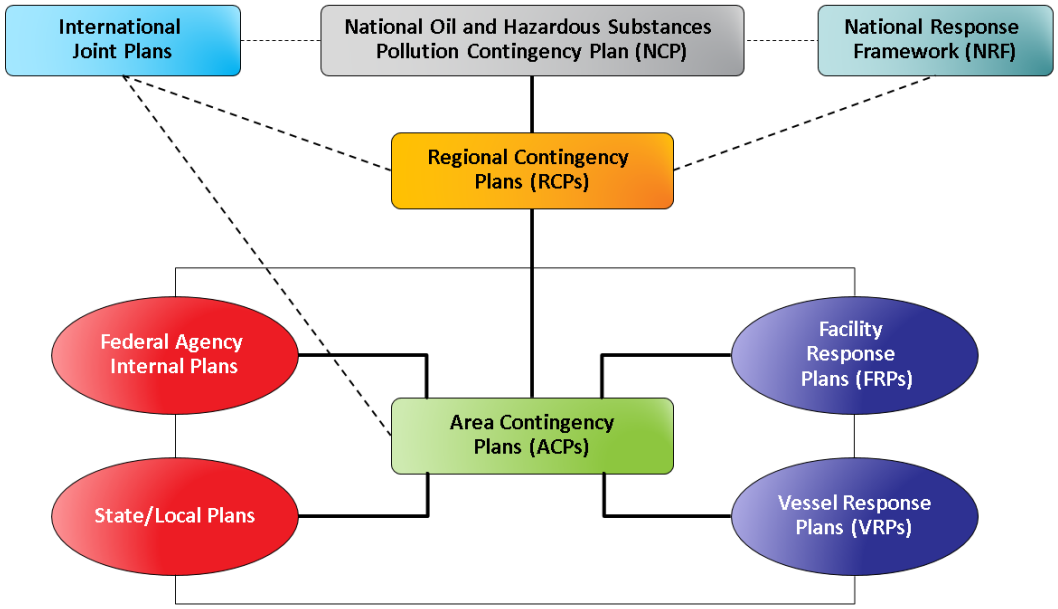

Figure 1. National Response System Family of Plans
(Source: 40 CFR § 300.205)

The National Response System is a multi-tiered response and preparedness mechanism composed of the National Response Team, the Regional Response Teams, and Area Committees, as well as local and industry planning committees (Figure 2). The National Response System supports the pre-designated Federal On-Scene Coordinator (FOSC) under the direction of the Federal Water Pollution Control Act's federal removal authority. The FOSC plans and coordinates response strategies with support from the National Response Team, Regional Response Team, and responsible parties, as necessary, to supply personnel, equipment, and scientific support to complete an immediate and effective response to oil spills and hazardous substance discharges (Bearden and Ramseur, 2017). Accordingly, the array of respondents and resources used to carry out a response may vary with the magnitude, scope, and complexity of an incident and the associated hazards.

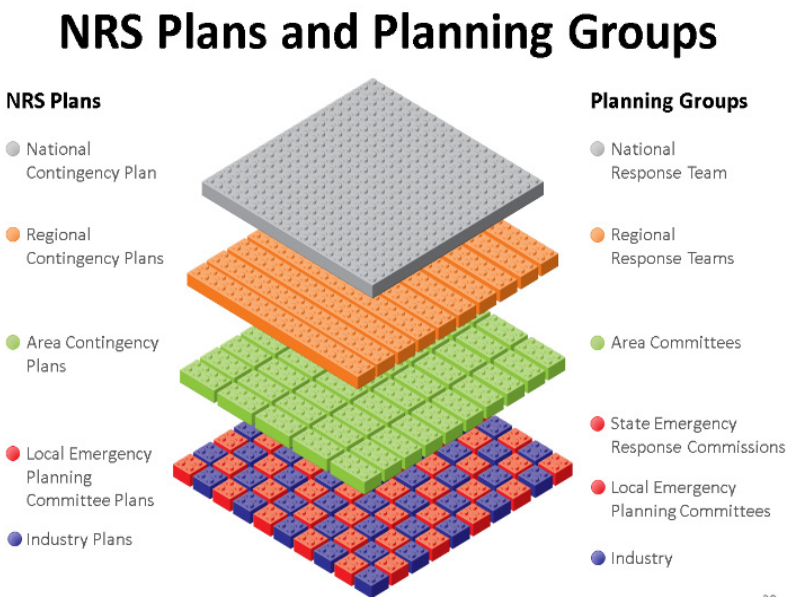

Figure 2. Family of Plans and Planning Groups
(Source: NRT, 2017)

Also required under 40 CFR § 300.210 are Area Contingency Plans. These plans must describe the area, identify the responsibilities of the responders (both government and the responsible party), list area response resources, outline dispersant procedures, describe integration with other plans, and identify sensitive areas. The Area Contingency Plans and their associated Area Committees are where the agency-industry relationship is nurtured (though industry representatives are not "members" of Area Committees).

Industry plans, which must be consistent with area and regional plans, as well as the National Contingency Plan, are an integral component of the National Response System. The National Contingency Plan provides for unique responsibilities of entities liable for a spill, referred to as the Responsible Party.

4.1 National Contingency Plan and Regional Response Teams

The National Contingency Plan, prepared and published under Section 311(d) of the CWA, is also called the National Oil and Hazardous Substances Pollution Contingency Plan. Designed primarily to assist with coordinating the various federal agencies responsible for oil spill emergencies, the National Contingency Plan ensures that federal resources and expertise would be available for those relatively rare, but very serious, oil spills that require a national response.

The National Contingency Plan provides state, territorial, local, and tribal governments the opportunity to participate in the federal response to an incident through the Regional Response Teams (Bearden and Ramseur, 2017). The Regional Response Teams are responsible for regional planning and preparedness activities before response actions occur, and for providing advice and support to the FOSC when activated during a response (ARRT, 2018). Considering the potentially large number of individuals who may be involved in the response to an incident under the National Contingency Plan, one high-level federal

official is responsible for coordinating all of the on-the-ground actions at the scene of a discharge of oil or a release of a hazardous substance (Bearden and Ramseur, 2017).

The FOSC, pre-designated as the USEPA or USCG, provides on-scene coordination of all aspects of a spill and subsequent cleanup activities. The USCG is the designated FOSC for all offshore (including the Exclusive Economic Zone) and coastal zone spills, whereas the USEPA generally is the designated FOSC for inland spills. The FOSC maintains the responsibility to ensure that the proper initiation of containment countermeasures, cleanup, and disposal actions take place. In the event the FOSC determines that spill response efforts by the responsible party are inadequate, the FOSC may direct the responsible party to take action to respond adequately, or the FOSC has the authority to "federalize" the response and use and allocate federal assets to carry out specific actions necessary to continue cleanup activities. The FOSC also determines when the federal response to an incident is complete and the regulations of the National Contingency Plan are satisfied. Ultimately, the responsible party(ies) is financially liable for any costs incurred from a federal response.

4.2 Area Contingency Plans and Committees

Under the National Contingency Plan, the USCG and USEPA are charged with chairing Area Committees and preparing Area Contingency Plans. An Area Contingency Plan is prepared by Area Committees who support the Regional Response Teams in preparing for a response to a discharge of oil or a hazardous substance into U.S. waters and the adjoining shorelines, as authorized under Section 311(j)(4) of the CWA. The geographic-specific aspects of an area plan augment the more general provisions of the national plan. When implemented together, these plans are intended to ensure an effective response to a discharge from a vessel, offshore facility, or onshore facility operating in or near the area (Bearden and Ramseur, 2017).

Specifically, the Area Contingency Plan describes the geographical area covered including any areas of special economic or environmental importance that might be damaged by a discharge. In addition, the plan includes:

- a detailed description of the plan holder, federal, state, and local agency responsibilities in removing a discharge;
- a list of equipment, dispersants or other mitigating substances and devices, and personnel available to a plan holder;
- a list of local scientists, both within and outside federal government service, with expertise in the environmental effects of spills; and
- a description of how the plan is integrated into other Area Contingency Plans and vessel, offshore facility, and onshore facility approved response plans.

4.3 Alaska Oil Spill Prevention, Response, and Cleanup Authorities and Contingency Plans

In 1980, legislation was enacted that defined the State of Alaska's policies regarding oil spills. In 1989 and 1990, following the Exxon Valdez Oil Spill, further legislation expanded and strengthened the State's oil spill response program. Specifically, Alaska Statute (AS) 46.04.200 requires the Alaska Department of Environmental Conservation (ADEC) to develop, annually review, and revise as necessary, the State Oil and Hazardous Substance Contingency Plans (State and Regional Master Plans). The State of Alaska authorities for oil spill prevention, response, and cleanup are located in the following statutes and administrative codes:

- AS 46.04.030 (Oil Discharge Contingency Plans)
- AS 46.04.200 (State Master Plan)

- AS 46.04.210 (Regional Master Plans)
- 18 Alaska Administrative Code (AAC) 75.400-425 (Oil Discharge Contingency Plans)
- 18 AAC 75.485 (Discharge Exercises)
- 18 AAC 75.495 (Regional Master Plan Boundaries)

Beginning in 2015, the State of Alaska, USCG, and USEPA evaluated Alaska's 20-year old oil spill planning structure (Unified Plan) and compared it to the planning format and policies currently implemented in the rest of the United States (National Response System) (see Figure 1). In September 2018, a new organizational structure, the Alaska Regional Contingency Plan, was unveiled in an effort to modernize and optimize responder efficiency and remain consistent with the requirements of the National Contingency Plan.

This transition converted the one Unified Plan and ten Sub-Area Plans into one Alaska Regional Contingency Plan and four Area Contingency Plans with Geographical Annexes (Figure 3). Due to Alaska's large size, the State is divided into four planning areas: Southeast Alaska, Prince William Sound, Arctic and Western Alaska, and Alaska Inland Zone. The three coastal areas mimic the USGC Captain of the Port Zones and extend seaward 200 nautical miles to the Economic Exclusion Zone and 1,000 yards inland (USCG and ADEC, 2018a,b,c). The inland zone extends from 1,000 yards inward of the coastal areas (EPA and ADEC, 2018). Within each of these areas, there are response boundaries for FOSCs and State On-Scene Coordinators (SOSCs). Each Area Contingency Plan identifies FOSCs and SOSCs with jurisdiction in that particular area.

Management of the Alaska Regional Contingency Plan is the responsibility of the Alaska Regional Response Team (ARRT) with a focus on region-wide policy issues. The Area Contingency Plans are managed by Area Committees, which emphasize specific area resources and procedures for a more efficient spill response, incident management, and effective implementation of response actions. Composed of representatives from all levels of government, industry, and stakeholders, the Area Committees work together to maintain, update, test, and distribute the Area Contingency Plan (Figure 4).

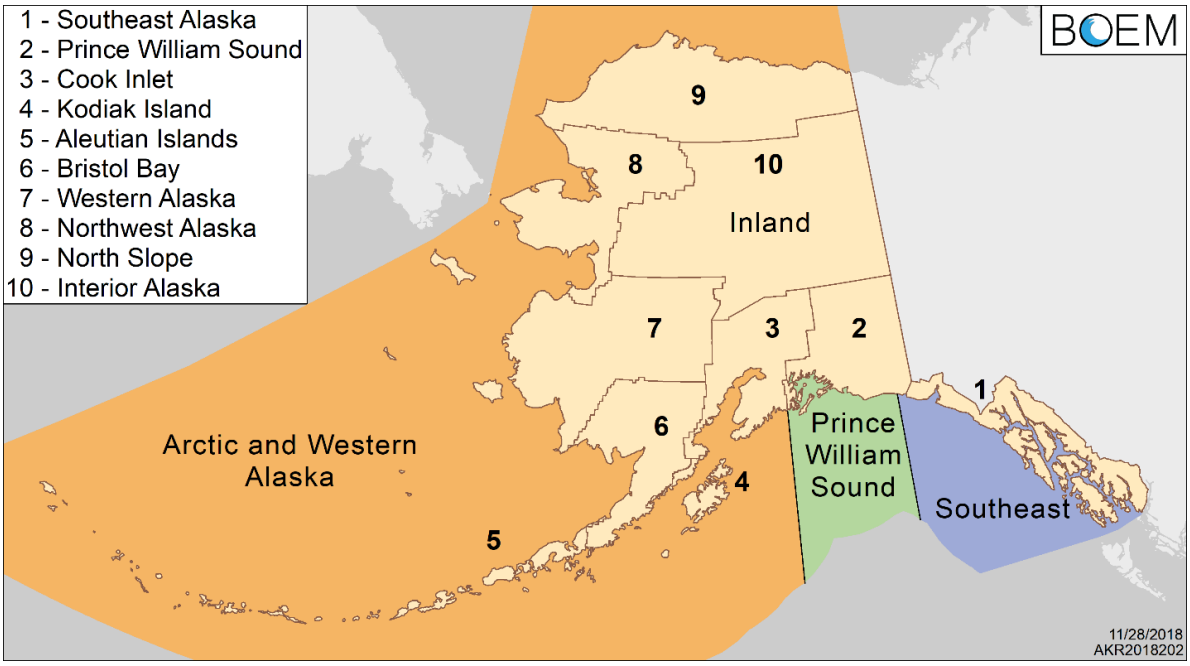

Figure 3. Alaska's Four Area Contingency Plans and Ten Geographic Zones Map
(Source: ARRT, 2018)

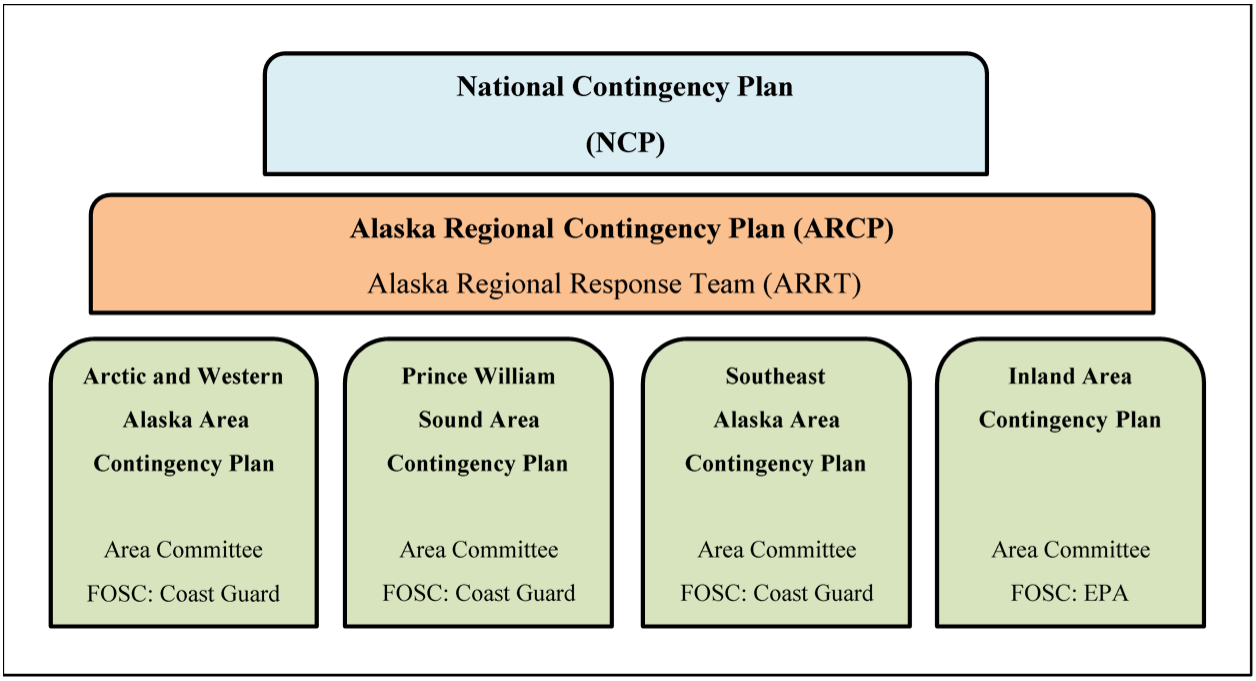

Figure 4. Alaska's Oil Spill Planning Framework Showing FOSC and State Relationships

The boundaries of the four planning areas were delineated to develop geographic-specific Area Contingency Plans, and within each of these areas, there are jurisdictional response boundaries for FOSCs and SOSCs. The precise delineation of these geographic planning boundaries and the FOSC boundaries are described in detail in the Alaska Regional Contingency Plan (ARRT, 2018).

The Governor of Alaska designated ADEC as the lead state agency representative to the ARRT. ADEC ensures that ARRT activities are communicated to and coordinated with the State Emergency Response Commission. ADEC also represents and coordinates ARRT involvement of various other state, borough, and municipal organizations. ADEC provides the SOSC for oil or hazardous substance incidents in accordance with the Alaska Regional Contingency Plan.

The Alaska Regional Contingency Plan explains the authorization process to use dispersants (ARRT, 2018; Appendix III, Dispersant Use Plan for Alaska). The Dispersant Use Plan for Alaska includes two checklists that govern dispersant use decisions. One authorizes dispersant use within the preauthorization area. The second authorizes dispersant use, using a case-by-case protocol, which applies within avoidance areas and for undesignated areas outside of the preauthorization area.

In the preauthorization area, the USCG, as FOSC, can decide to apply dispersants to a crude oil spill. The preauthorization area extends from 24 nautical miles offshore out to 200 nautical miles offshore (approximately 27.6 to 230 miles), south of Alaska's mainland through the Aleutian chain (Figure 5). Preauthorization area boundaries encompass marine transit routes used by crude-oil laden tankers and other vessels and transect five of Alaska's ten geographic zones: Prince William Sound, Cook Inlet, Kodiak, Bristol Bay, and the Aleutians. Areas farther than 200 nautical miles from shore are international waters and are not part of this plan. Within each of these five geographic zones, specific avoidance areas are identified, which require special consideration, consultation, and approval before the USCG's FOSC approves dispersant use (Figure 5).

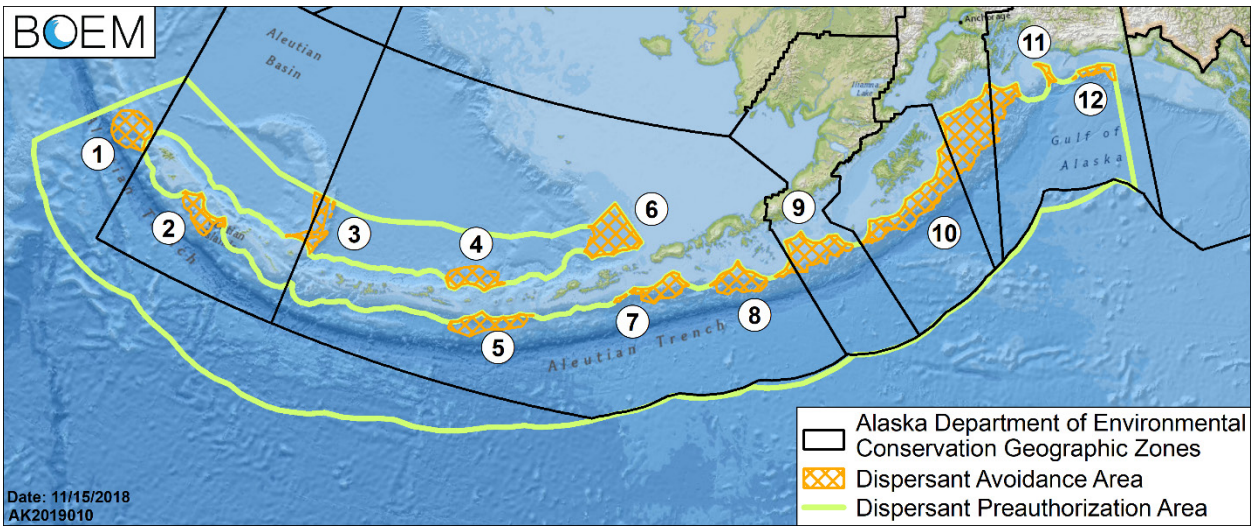

Figure 5. Boundaries of the Preauthorization Area for Dispersant Use (shown in green) and Avoidance Areas (shown in orange)

All areas within 24 nautical miles of shore are considered "undesignated." In undesignated areas, dispersants may be authorized on a case-by-case basis. The FOSC must get a "consensus recommendation" from the USEPA, the USDOI, the U.S. Department of Commerce, and ADEC. A list of trade-offs must be considered for each potential dispersant location, which includes water depth, distance from shore, salinity, temperature, sensitive species, and habitat. All must agree before dispersants can be used in undesignated areas.

4.4 Local Plans

The Superfund Amendment and Reauthorization Act of 1986, Title III and AS 26.23.073 require the establishment of Local Emergency Planning Committees (Local Committees) in Local Emergency Planning Districts. Local Committees must develop Local Emergency Response Plans (also known as Emergency Operations Plans) that provide essential information regarding resources and emergency procedures at the local community level. Although original federal requirements focused Local Committee planning and preparedness efforts on Extremely Hazardous Substances (i.e., chemicals, not oil), on September 25, 1990, the Alaska Legislature and the Alaska State Emergency Response Commission broadened that focus to include oil and petroleum (ARRT, 2018).

4.5 Industry Contingency Plans

Industry facility and vessel response/contingency plans provide specific information regarding the responsible party's containment, control, and cleanup actions and are submitted to a federal or state agency in accordance with applicable regulations. Under the original terms of EO 12777 issued in 1991, and subsequent updates, responsibility for spill response planning is divided among four federal agencies (NRC, 2016):

- The Pipeline and Hazardous Materials Safety Administration (PHMSA), in the U.S. Department of Transportation, has responsibility for overseeing preparation and approval of response plans for spills from onshore pipelines.
- USEPA reviews and approves response plans for spills from non-transportation-related onshore facilities.
- USCG, in the U.S. Department of Homeland Security, performs these functions for vessels and onshore marine facilities.

- BSEE, in the USDOI, oversees spill response planning for offshore facilities.

Industry oil spill response plans (OSRP) submitted to BSEE for OCS operations are discussed in Section 5.3, and must be consistent with the appropriate area and national contingency plans (30 CFR § 254.5).

4.6 International Agreements and Joint Contingency Plans

Several joint international plans and agreements with the United States are in place to facilitate cooperation between nations to combat pollution between borders. The State of Alaska shares an onshore border with Canada, while Alaska's offshore coastline and adjacent waters share borders with both Canada and Russia.

4.6.1 United States and Russian Federation Agreement

The 1989 Agreement was updated in 1997 to change the Union of Soviet Socialist Republics to the Russian Federation and retitled as *United States of America and Russian Federation Joint Contingency Plan against Pollution in the Bering and Chukchi Seas* (United Nations, 2004). This agreement, including the operational appendix, facilitates cooperation in combating pollution in the Bering and Chukchi Seas in emergency situations. The USCG and the Russian Federation Marine Pollution Control and Salvage Administration would implement the plan and coordinate joint response teams and centers.

4.6.2 Arctic Council Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic

On May 15, 2013, the *Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic* was signed between the governments of Canada, the Kingdom of Denmark, the Republic of Finland, Iceland, the Kingdom of Norway, the Russian Federation, the Kingdom of Sweden, and the United States (Arctic Council, 2013). The objective of the Agreement is to strengthen cooperation, coordination, and mutual assistance among the parties on oil pollution preparedness and response in the Arctic to protect the marine environment from oil pollution.

4.6.3 Canada-United States Joint Marine Pollution Contingency Plan

The *Canada–United States Joint Marine Pollution Contingency Plan* is an international agreement between the Canadian Coast Guard and the USCG (CCG and USCG, 2017). The overall purpose of the joint plan is to promote a coordinated system and operational guidelines for national and regional preparedness, planning, and response to events in adjacent waters. Promulgated in 1974, the joint plan for the Great Lakes was a mechanism to manage accidental and unauthorized releases that cause pollution or damage along shared maritime boundaries. In September of 1983, four subsequent geographic Annexes covering the Atlantic Coast, Pacific Coast, Dixon Entrance, and the Beaufort Sea were added. Since that time, the joint plan was revised or replaced several times. Provisions of the 1990 International Convention on Oil Pollution Preparedness, Response, and Co-operation, to which both Canada and the United States are parties, along with changes to each country's spill preparedness and response regimes, necessitated further revisions to the joint plan in 2017.

The responsible Canadian Coast Guard Regional Directors and the USCG District Commanders develop detailed Regional Annexes to the Joint Marine Pollution Contingency Plan for their respective transboundary regions. For Alaska, the two relevant Annexes are CANUSNORTH – the Beaufort Sea, and CANUSDIX – the Dixon Entrance. Regional Annexes must be exercised at least every 5 years (Environment and Climate Change Canada, 2017).

5 BOEM AND BSEE AUTHORITIES AND RESPONSIBILITIES

OCSLA and the Federal Water Pollution Control Act provide the Secretary of the Interior the authority to regulate oil, gas, and mineral exploration and development on the OCS. The Secretary has delegated this authority to BOEM and BSEE. With their functions and mission so closely tied together, BOEM and BSEE work in close partnership. Measures to minimize potential pollution through preparedness and prevention, safety, and environmental compliance are an integral part of the OCS Program. These measures are implemented through operating regulations, Notices to Lessees (NTLs), lease stipulations, and project specific requirements or approval conditions that are applied to all oil and gas related OCS plans.

BOEM's functions include leasing, exploration and development plan administration, geological and geophysical permitting, environmental studies, National Environmental Policy Act analysis, resource evaluation, economic analysis, marine minerals, and renewable energy development. BOEM's regulations for oil, gas, and sulphur lease operations, oil spill financial responsibility, and bonding are specified in 30 CFR parts 550, 553, and 556 (except those aspects that pertain to drilling). Select BOEM functions designed to facilitate compliance, oil spill preparedness, prevention, response, and financial responsibility include the following:

- Review and potentially approve exploration and development plans
- Review spill financial liability limits
- Certify spill financial responsibility

BSEE's functions encompass all field operations, including permitting, research, inspections, offshore regulatory programs, oil spill response, training, safety, and environmental compliance. BSEE regulations for oil, gas, and sulphur lease operations and oil spill response requirements are found in 30 CFR parts 250 and 254. Select BSEE functions designed to facilitate compliance, oil spill preparedness, prevention, response, and financial responsibility include the following:

- Require immediate notification for spills ≥1 bbl; all spills require notification of USCG
- Conduct investigations to determine the cause of a spill
- Assess civil and criminal penalties, if needed
- Oversee spill source control and abatement operations by industry
- Set requirements and review and approve OSRPs for offshore facilities
- Conduct unannounced drills to ensure compliance with OSRPs
- Require operators to ensure that their spill response operating and management teams receive appropriate spill response training
- Conduct inspections of oil spill response equipment
- Provide research leadership to improve the capabilities for detecting and responding to an oil spill in the marine environment

5.1 BOEM Authorities

OPA gave the Secretary of the Interior authority over offshore facilities and associated pipelines, with the exception of deepwater ports, for state and federal offshore waters. The Secretary in turn delegated this OPA authority to BOEM and BSEE. Regulatory requirements specify what oil and hazardous substance spills information must accompany plans submitted to BOEM including oil spill response planning information and a modeling report. BOEM, through 30 CFR §§ 550.219(a) and 550.250(a), requires operators to provide an OSRP with their proposed exploration, or development and production, plan for the proposed facilities. BOEM requires that the OSRP is prepared in accordance with BSEE regulation 30

CFR part 254 subpart B. Alternatively, operators may reference their approved regional OSRP by providing the following information:

- A discussion of the approved OSRP
- Location of the primary oil spill equipment base and staging area
- Name(s) of the oil spill equipment removal organization(s) for both equipment and personnel
- Calculated volume of the worst case discharge scenario in accordance with 30 CFR § 254.26(a), and a comparison of the appropriate worst case discharge scenario in the approved regional OSRP with the worst case discharge that could result from these proposed activities
- A description of the worst case discharge scenario that could occur from these proposed activities in accordance with 30 CFR § 254.26 (b)-(d)

BOEM reviews financial liability limits and requires industry to provide evidence of oil spill financial responsibility (see Section 3.2). BOEM receives and reviews the worst case discharge and blowout scenarios information submitted for Exploration Plans, Development and Production Plans, or Development Operations Coordination Documents on the OCS. Section 5.3, BSEE Oil Spill Response Plans, summarizes the review and approval process of OSRPs.

5.2 BSEE Pollution Prevention Authorities

Pollution prevention regulatory requirements for oil, gas, and sulphur operations in the OCS are found at 30 CFR part 250, subpart C – Pollution Prevention and Control. Specifically, 30 CFR § 250.300 (a) requires lessees who engage in activities such as exploration, development, production, and transportation of oil and gas to take measures to prevent unauthorized discharge of pollutants into offshore waters. The lessee shall not create conditions that will pose unreasonable risk to public health, life, property, aquatic life, wildlife, recreation, navigation, commercial fishing, or other uses of the ocean. These regulations further mandate inspections, either daily or at intervals approved or prescribed by BSEE's District Field Operations Supervisor, of drilling and production facilities to determine if pollution is occurring. If problems are detected, maintenance or repairs must be made immediately.

Pollution control and removal is the responsibility, and at the expense, of the lessee. All hydrocarbon-handling equipment for testing and production, such as separator and treatment tanks, must be designed, installed, and operated to prevent pollution. Maintenance or repairs necessary to prevent pollution of offshore waters must be completed immediately. In the event of an unauthorized release, immediate corrective action is required.

Curbs, gutters, drip pans, and drains on platform and rig deck areas must be installed in a manner necessary to collect all greases, contaminants, and debris not authorized for discharge. The regulations explicitly prohibit the disposal of equipment, cables, chains, containers, or other materials into offshore waters. Portable equipment, spools or reels, drums, pallets, and other loose items must be marked in a durable manner with the owner's name prior to use or transport over offshore waters. Smaller objects must be stored in a marked container when not in use.

Regulations at 30 CFR part 250, subparts E, F, and H require that the lessee assure the safety and protection of the human, marine, and coastal environments during completion, workover, and production operations. All production facilities, including separators, treaters, compressors, headers, and flowlines are required to be designed, installed, tested, maintained, and used in a manner that provides for efficiency, safety of operations, and protection of the environment. Wells, particularly subsea wells, include a number of sensors that help detect pressures and the potential for leaks in the production system. Safety devices are monitored and tested frequently to ensure their operation. BSEE incorporates the American Petroleum Institute Recommended Practice 14C into the operating regulations. This

recommended practice integrates the knowledge and experience of the oil and gas industry regarding the analysis, design, installation, and testing of the safety devices used to prevent pollution and provides for safety devices for offshore production platforms.

Regulations at 30 CFR part 250, subpart J require that pipelines and associated valves, flanges, and fittings be designed, installed, operated, and maintained to provide safe and pollution-free transportation of fluids in a manner that does not unduly interfere with other uses on the OCS.

Operational discharges such as produced water and drilling muds and cuttings are regulated by the USEPA through the National Pollutant Discharge Elimination System permit program for new and existing discharges and sources (40 CFR part 435, subpart A). BSEE may restrict the rate of drilling fluid discharge or prescribe alternative discharge methods. No petroleum-based substances, including diesel fuel, may be added to the drilling mud system without prior approval of BSEE's District Field Operations Supervisor.

5.3 BSEE Oil Spill Response Plans

BSEE's Oil Spill Preparedness Division (OSPD) has legal authorities and required operational capabilities, originating from 30 CFR part 254, for oil spill response for facilities located seaward of the coastline. To help execute its responsibilities, BSEE OSPD developed an internal guidance document, *Oil Spill Preparedness Division Manual: Standard Operating Procedures for 30 CFR 254 Regulatory Activities* (BSEE, 2017). The development and public release of this document had two primary benefits: (1) it established a consistent approach for BSEE personnel to follow when managing the 30 CFR part 254 regulations, and (2) it informed the industry and the public of BSEE's regulatory procedures. Additionally, the National Contingency Plan at 40 CFR part 300, subpart B §175(b)(9)(v) identified BSEE's (formerly Minerals Management Service; MMS) legal authorities and capabilities for oil spill response.

Every owner/operator operating seaward of the coastline, whether in state or federal waters, must submit an OSRP for their facilities to BSEE. Owners or operators of offshore pipelines are required to submit a plan for any pipeline that carries oil, condensate that has been injected into the pipeline, or gas and naturally occurring condensate. Pipelines carrying essentially dry gas do not require a plan. Dry gases are defined as those that contain less than 0.1 gallon of condensables per 1,000 cubic feet of produced gas. The OSRP must also be consistent with the requirements of the National Contingency Plan and any applicable Area Contingency Plan for the area in which the facility is located. BSEE reviews and approves all OSRPs, whether submitted with a BOEM-associated plan or directly to BSEE.

The regulation at 30 CFR § 254.2 requires that an OSRP must be submitted and approved before an operator can use a facility. BSEE can grant an exception to this requirement during its review of an operator's submitted OSRP. In order to immediately begin operating a facility without an approved OSRP, an owner/operator must certify in writing to the Chief of BSEE's OSPD that it is capable of responding, to the maximum extent practicable, to a "worst case" spill or the substantial threat of such a discharge and provide contracts showing availability of sufficient response personnel and equipment. If granted, this waiver allows an operator to operate their facility for up to 2 years while BSEE reviews the OSRP. Current OSRPs are required for abandoned facilities until they are physically removed or dismantled.

The OSRP may be site specific or regional (30 CFR § 254.3). "Site specific" applies to a spill response plan that covers a single lease or facility. "Regional" applies to a plan that covers multiple facilities or leases of an owner or operator, including affiliates, which are located in the same BSEE OCS region. The Regional OSRP allows leases or facilities to be grouped together for the purposes of: (1) calculating response times; (2) determining quantities of response equipment; (3) conducting oil spill trajectory analyses; (4) determining worst case discharge scenarios; and (5) identifying areas of special economic and environmental importance that may be impacted and the strategies for their protection. BSEE

determines the number and location of the leases and facilities allowed under a Regional OSRP on a case-by-case basis considering the proximity of the leases or facilities proposed to be covered. The NTL 2012-BSEE-N06 includes guidance on the preparation and submittal of regional OSRPs.

All BSEE-approved OSRPs are required by 30 CFR § 254.30(a) to be reviewed at least every 2 years with all resulting modifications submitted to the Chief of OSPD. If this review does not result in modifications, the owner/operator must inform the Chief, OSPD in writing that there are no changes. Revisions to a response plan must be submitted to BSEE within 15 days whenever: (1) a change occurs that significantly reduces an owner/operator's response capabilities; (2) a significant change occurs in the worst case discharge scenario or in the type of oil being handled, stored, or transported at the facility; (3) there is a change in the name(s) or capabilities of the oil spill removal organizations (OSRO) cited in the plan; or (4) there is a significant change in the appropriate Area Contingency Plan(s).

Additionally, revisions to an OSRP may be required by the Chief, OSPD if significant inadequacies are indicated by: (1) periodic review; (2) information obtained during drills or actual spill responses; or (3) other relevant information the Chief, OSPD obtained.

5.3.1 Required Oil Spill Response Plan Contents

Regulations at 30 CFR § 254 for facilities on the OCS require an OSRP to include the following:

- Introduction and OSRP contents, 30 CFR § 254.22
- Emergency Response Action Plan, 30 CFR § 254.23
- Equipment Inventory, 30 CFR § 254.24
- Contractual agreements, 30 CFR § 254.25
- Worst Case Discharge Scenario, 30 CFR § 254.26
- Dispersant Use Plan, 30 CFR § 254.27
- In-Situ Burning Plan, 30 CFR § 254.28
- Training and drills, 30 CFR § 254.29

Following are brief descriptions of these regulations, highlighting key elements for each requirement.

Introduction and Oil Spill Response Plan Contents

This section requires the identification of the facility covered by the plan, including location and type, a table of contents, a record of changes made to the plan, and a cross-reference table if an alternate OSRP format is used.

Emergency Response Action Plan

The Emergency Response Action Plan is the core of the OSRP (30 CFR § 254.23). In this section, the operator must designate, by name or position, a trained Qualified Individual who has full authority to implement the plan and commit company resources to respond to a spill, a trained spill management team, and a trained spill response operating team. All of these resources must be available on a 24-hour basis. They must identify the planned location for a spill response operations center, as well as provisions for primary and secondary communication systems for coordinating and directing spill response operations. This section also must include a list of procedures to follow in the event of a release, along with a list of federal, state, and local agencies to notify in the event of a spill and the contact information for any OSRO cited in the plan. A number of additional elements are required:

- Spill notification procedures
- Methods to predict and monitor spill movement

- Methods to identify and prioritize beaches, waterfowl, other marine and shoreline resources, and areas of special economic or environmental importance
- Methods to ensure containment and recovery equipment, and response personnel are mobilized and deployed at the spill site
- Methods to ensure that storage devices for recovered oil are sufficient to provide uninterrupted containment and recovery operations
- Procedures to remove oil and oiled debris from shallow waters and shoreline and collect and rehabilitate oiled waterfowl
- Procedures to store, transfer, and dispose of recovered oil and oil contaminated materials in accordance with applicable federal, state, and local requirements
- Methods to implement dispersant and in-situ burning plans

Equipment Inventory

The Equipment Inventory section (30 CFR § 254.24) must include a listing of spill response materials and supplies, services, equipment, and response vessels available locally and regionally, along with location and contact information for each supplier. A description of inspection and maintenance procedures also must be provided.

Contractual Agreements

The operator must provide copies of contracts or membership agreements with OSROs, cooperatives, spill response service providers, or spill-management team members cited in the plan who are not employees (30 CFR § 254.25). These agreements must include provisions for ensuring the availability of the personnel and/or equipment on a 24-hour per day basis.

Worst Case Discharge Scenario

The Worst Case Discharge Scenario is a narrative that identifies response actions to be taken should a worst case discharge of oil occur (30 CFR § 254.26). Determining the volume of a Worst Case Discharge Scenario is defined in 30 CFR § 254.47. For an oil production facility, the size of the worst case discharge is the sum of the maximum capacity of all oil storage tanks and flow lines; the volume of oil calculated to leak from a break in any pipelines connected to the facility; and the daily production volume from an uncontrolled blowout of the highest capacity well associated with the facility.

For exploration or development drilling operations, this is the daily production volume from an uncontrolled blowout of the highest capacity well associated with the facility, and the scenario must discuss how the operator would respond to the well flowing for a period of 30 days. The scenario must include all of the components listed under the Emergency Response Action Plan. In developing the scenario, the operator must provide:

- an appropriate trajectory analysis specific to the area in which the facility is located;
- a list of the resources of special economic or environmental importance that potentially could be impacted in areas identified by the trajectory analysis;
- discussion of response to a worst case scenario in adverse weather conditions; and
- discussion that ensures suitability within the limits of current technology and environmental conditions using standardized defined terms.

For a pipeline facility, the size of the Worst Case Discharge Scenario is the volume possible from a pipeline break.

Dispersant Use Plan

Operators are required to provide a Dispersant Use Plan that is consistent with the National Contingency Plan Product Schedule and other provisions of the National and appropriate Area Contingency Plan(s) (30 CFR § 254.27). The Dispersant Use Plan must include an inventory and location of dispersants and other chemical or biological products that could be used on the oils handled, stored, or transported at the facility. In addition, the plan must include summary information on chemical toxicity data, types and location of application equipment, application procedures, conditions under which the chemicals may be applied, and an outline of product use approval procedures.

In-Situ Burning Plan

The In-Situ Burning Plan must be consistent with the National and appropriate Area Contingency Plan(s) (30 CFR § 254.28). The plan must provide:

- description of burn equipment, including location and availability;
- discussion of in-situ burning procedures, including provisions to ignite the oil;
- discussion of environmental effects of the burn;
- guidelines for well control and safety of personnel and property;
- discussion of when in-situ burning may be appropriate and guidelines for making the decision to ignite; and
- an outline of procedures for gaining approval for an in-situ burn.

Training and Drills

Spill response training and drill requirements are provided for at 30 CFR § 254.29. BSEE requires that members of the operator's spill response team who are responsible for operating response equipment attend hands-on training classes, at least annually, covering the deployment and operation of the response equipment they will use (30 CFR § 254.41). The operator must identify and include dates of training provided to members of the spill response management team and qualified individuals. Types of training given to the members of the spill response operating team must be described. Training must include locations, intended use, deployment strategies and operational and logistical requirements for response equipment, spill-reporting procedures, oil spill trajectory analysis and predicting spill movement, and any other team-specific responsibilities. Records of all training must be maintained and available for inspection by authorized BSEE personnel for at least 2 years.

The operator also must conduct a series of exercises and deployment drills over a 3-year period to exercise all aspects of the OSRP (30 CFR § 254.42). The operator must conduct:

- an annual tabletop exercise to test the spill-management team's organization, communication, and decision-making;
- an annual deployment exercise of response equipment identified in the plan, and each type of equipment must be deployed and operated during the 3-year period;
- an annual notification exercise for each facility manned on a 24-hour basis; and
- a semiannual deployment exercise of any response equipment that BSEE requires an owner/operator to maintain on site.

During the course of the exercises, conditions that exist in the area of operation must be simulated, including seasonal variations. Exercises must cover a range of scenarios simulating responses to large continuous spills, spills of short duration and limited volume, and the worst case discharge. Credit will be given for any documented exercise that satisfies some part of the required triennial exercise. All records of spill response exercises must be maintained for the complete 3-year exercise cycle and must be available for inspection by authorized BSEE representatives. The Chief, OSPD must be informed of the

date of an exercise at least 30 days before, and the BSEE Regional Supervisor periodically will initiate unannounced drills. The Chief, OSPD may require changes in the frequency or locations of exercises. Compliance with the National Preparedness for Response Program Guidelines satisfy the requirements of 30 CFR § 254.42.

Most operators use the National Preparedness for Response Program for planning and conducting response exercises and drills. The program is a unified federal effort and satisfies exercise requirements for the USCG, USEPA, PHMSA, and BSEE. Elements of the program are provided in the National Preparedness for Response Program Guidelines (USCG, et al. 2016). The program includes a series of internal and external exercises that must be conducted over a 3-year period. Internal exercises are designed to examine and test the various components of a response plan to ensure the plan meets the needs of the operator. The external exercises are designed to evaluate the response plan and the plan holder's ability to coordinate with the response community to conduct an effective response. These guidelines were developed in cooperation with the USCG, USEPA, PHMSA, and BSEE to allow regulatory agencies the opportunity to evaluate various aspects of a plan holder's preparedness, including their emergency procedures and their contracted OSROs' capabilities for proper and timely equipment deployment.

5.3.2 Notices to Lessees

BOEM and BSEE issue Notices to Lessees (NTLs) to provide clarification, description, or interpretation of a regulation; guidelines on the implementation of a special lease stipulation or regional requirement; or convey administrative information. Several NTLs and guidance documents, issued by either BOEM or BSEE, clarify additional oil spill requirements and are summarized below in descending chronological order.

BSEE NTL 2017-N06

BSEE issued NTL 2017-N06, "Electronic Submittal of Oil Spill Response Plans and Related Information," effective on December 29, 2017. This NTL allows online submittal of OSRPs and records requested by BSSE's OSPD (such as training, exercise, and equipment maintenance and inspection records) and serves as a method for notifying BSEE of exercises. Owners or operators may elect to continue to submit required information in hard-copy and other acceptable formats.

BOEM NTL 2015-N01

BOEM issued NTL 2015-N01, "Information Requirements for Exploration Plans, Development and Production Plans, and Development Operations Coordination Documents on the OCS for Worst Case Discharge and Blowout Scenarios," effective January 4, 2015. This NTL explains the procedures for the lessee or operator to submit worst case discharge and blowout scenario information for new or previously submitted Exploration Plans, Development and Production Plans, or Development Operations Coordination Documents. The required information includes: (1) a blowout scenario as required by 30 CFR §§ 550.213(g) and 550.243(h); (2) a description of the assumptions and calculations used in determining the volume of the worst case discharge required by 30 CFR § 550.219(a)(2)(iv) (for Exploration Plans) or 30 CFR § 550.250(a)(2)(iv) (for Development and Production Plans, and Development Operations Coordination Documents); and (3) a description of the measures proposed that would enhance the ability to prevent a blowout, to reduce the likelihood of a blowout, and to conduct effective and early intervention in the event of a blowout, including the arrangements for drilling relief wells and any other measures proposed.

BSEE NTL 2013-N02

BSEE issued NTL 2013-N02, "Significant Change to Oil Spill Response Plan Worst Case Discharge Scenario," effective August 26, 2013, which clarifies what BSEE considers a significant change in an

OSRP worst case discharge scenario. In accordance with 30 CFR § 254.30(b)(2), an OSRP revision must be submitted to BSEE for approval within 15 days of a significant change in the worst case discharge scenario. BSEE considers a change in worst case discharge as significant, and thus requiring revision, when the process identifies the need for additional onshore or offshore response equipment beyond what is included in an approved OSRP. BOEM receives worst case discharge volume information as part of the proposed exploration, or development and production plan, and performs its validation process. Concurrently or consecutively, the operator also submits the information to BSEE OSPD. It is then validated by OSPD against the plan volume. The 15-day timeframe for notification of a significant change will be enforced by BSEE as beginning no later than the date that the operator submitted an Application for Permit to Drill to BSEE.

BSEE NTL 2012-N06

BSEE issued NTL 2012-N06, "Guidance to Owners and Offshore Facilities Seaward of the Coast Line Concerning Regional Oil Spill Response Plans." Effective on August 10, 2012, this NTL provides clarification, guidance, and information concerning the preparation and submittal of a regional OSRP for owners and operators of oil handling, storage, or transportation facilities, including pipelines, located seaward of the coastline.

This NTL is designed to encourage owners and operators of offshore facilities to include innovative offshore oil spill response techniques, particularly for a continuous high-rate spill. Requirements for the submittal of information regarding subsea containment equipment and subsea dispersant application, among other provisions in this NTL, also encourage the inclusion of options that would improve spill response capabilities, such as:

- using remote-sensing techniques as a tool for safe night operations to increase oil spill detection and to improve thickness determinations for ascertaining the effectiveness of response strategies;
- increasing spill response operational time by reducing transit times to disposal locations and decontamination equipment;
- identifying sources for supplies and materials, such as fire boom (long, floating barriers) and dispersants, that can support a response to an uncontrolled spill lasting longer than 30 days or for the duration of the spill response; and
- the use and specification of primary and secondary communications technology and software for coordinating and directing spill response operations systems and/or providing a common operating picture to all spill management and response personnel, including the FOSC and participating federal and state government officials.

BSEE NTL 2012-N07

BSEE issued NTL 2012-N07, "Oil Discharge Written Follow-up Reports," effective November 16, 2012. This NTL describes the contents of the report that must be submitted to BSEE for all oil discharges of 1 barrel (42 gallons) or more within 15 days after a spill has been stopped or ceased. Failure by the responsible party to submit written follow-up reports, or an Incident Action Plan, within the 15-day period could result in an enforcement action by BSEE, including issuance of an Incident of Non-Compliance.

BOEMRE NTL 2010-N10

BSEE (previously under the Bureau of Ocean Energy Management, Regulation and Enforcement; BOEMRE) issued NTL 2010-N10, "Statement of Compliance with Applicable Regulations and Evaluation of Information Demonstrating Adequate Spill Response and Well Containment Resources,"

effective November 8, 2010. This NTL applies only to operators using subsea blowout preventers on floating facilities. The NTL notifies the operator that BSEE intends to evaluate the adequacy of each operator to comply with the operator's current OSRP; therefore, there is an incentive for voluntary compliance. The type of information that BSEE would review includes:

- subsea containment and capture equipment, including containment domes and capping stacks;
- subsea utility equipment, including hydraulic power, hydrate control, and dispersant injection equipment;
- riser systems;
- remotely operated vehicles;
- capture vessels;
- support vessels; and
- storage facilities.

5.3.3 BSEE Oil Spill Response Plan Inspections

BSEE conducts routine inspections of operators' facilities to ensure that the identified spill response resources are readily available and in the quantities and condition described in the OSRP. Inspections of response equipment owned by OSROs, along with maintenance and inspection records, also are conducted to verify response readiness.

BSEE audits the oil spill preparedness training performed by offshore facility owners and operators. This ensures that industry personnel are properly trained to support a command and control organization, and to operate their response equipment. BSEE personnel may attend industry training sessions and/or company exercises to improve the proficiencies of their Qualified Individuals, Incident Management Teams, and Spill Response Operations Teams. In addition, BSEE inspects the training records for oil spill response personnel identified in the OSRP. These industry records contain proof of training and qualification of the personnel as evidenced in course agendas and completion certificates, attendance records, or other relevant documentation.

5.3.4 BSEE Oil Spill Response Plan Drills

In addition to operator exercises that BSEE may observe, BSEE will periodically commence both announced exercises and Government Initiated Unannounced Exercises (GIUEs) to test the operator's spill response preparedness. These exercises may take the form of tabletop exercises and/or equipment deployments and are conducted in accordance with the National Preparedness Response Exercise Program Guidelines as described in Section 5.3.1.

Since 1989, BSEE has conducted GIUEs that provide an economically feasible mechanism for operators to comply with the requirements defined in 30 CFR part 254. The owner or operator of an offshore regulated facility that is directed to participate in a GIUE must do so unless specific conditions exist that could compromise safety. The BSEE OSPD Chief determines the number of GIUEs for BSEE-regulated offshore facilities. A facility will not participate in a BSEE GIUE more than once every 36 months, unless the results of previous exercises indicate that follow-up drills are warranted due to inadequate performance during a drill. If, in the course of the drills, BSEE determines that plans are inadequate, the operator will be required to modify the plan to address deficiencies in response equipment, procedures, and/or strategies.

BSEE Tabletop Exercises

A tabletop exercise tests the OSRP and the spill management team's response efforts using a hypothetical oil spill scenario to create an oil spill response simulation. Exercises can be designed to test different

aspects of an OSRP and to achieve different objectives. A tabletop exercise occurs in a realistic, real-time environment; however, the movement of personnel and equipment is usually simulated. The primary objective of a tabletop exercise is for the management team to demonstrate the knowledge and capability to operate within the framework of their OSRP. A tabletop exercise aims to test the capabilities of the incident management team to mobilize an appropriate organization; execute communications; and demonstrate decision-making to effectively support, direct, and manage a response.

Tabletop exercises can range from basic to complex. In a basic tabletop exercise, the presented scenario remains constant. In more advanced exercises, the scenario advances as the spill management team receives pre-scripted messages. Tabletop exercises occur at the plan holder's incident command post and are usually conducted in a conference room or series of rooms connected by communications equipment. They generally focus on the roles and actions of the individuals, the interactions between the various parties, and the development of information and response strategies. These exercises can last about 2 to 8 hours depending on how quickly the incident management team is able to complete BSEE's exercise objectives.

BSEE Equipment Deployment Exercises

The purpose of equipment deployment exercises is to ensure that response equipment is appropriate for the intended operating environment and that personnel are trained in its deployment and operation. An equipment deployment exercise tests an operator's ability to deploy equipment based on either a single or multiple tactics listed in their approved OSRP. Once the equipment arrives on scene, personnel should be able to deploy and operate the equipment without significant difficulty (e.g., people should be aware of locations of equipment launch sites, anchoring points, and deployment strategies). However, because specific conditions vary at every site, deployments are not likely to be seamless. Personnel may need to make adjustments that delay completion of the deployment but still would generally last no more than 8 hours. In fact, the ability to adjust to these differing environmental conditions may be an indicator of the competence of response personnel. BSEE equipment deployment exercises usually take place in waterways adjacent to where the equipment is stored at the plan holder's OSROs, but they may occur at their offshore facility if equipment is staged on-site.

BSEE GIUEs – Potential Equipment Deployment Activities: This section describes potential equipment deployment activities during a BSEE GIUE. It presents an operational synthesis of major countermeasures, corresponding tactics, and associated equipment deployed during a GIUE.

- **Frequency and Extent.** GIUEs for an individual plan holder generally occur infrequently (every 36 months) unless follow up drills are warranted based on inadequate performance on previous exercises. Site-specific drills for one operator could occur at that facility every 36 months, but equipment from an OSRO could be deployed in a similar area more than once within that timeframe because multiple operators could be using the same OSRO. The extent of the GIUE would be adjacent to the facility or in the local area (within 25 kilometers of the staging area).
- **Duration.** A small GIUE equipment deployment would generally demonstrate one tactic and last no more than 4 to 8 hours. In a large GIUE equipment deployment, several tactic demonstrations would be required but still would last not more than 8 hours.
- **Conditions.** During winter, the Arctic Ocean, Bering Sea, and portions of the Cook Inlet ocean surface freezes, necessitating the use of winter tactics to respond to a discharge to the environment. A winter tactic could include freezing equipment into place, which would prolong deployment of the equipment for more than 8 hours.
- **Countermeasures.** Table 1 identifies various response countermeasure types, their associated tactics, and the potential equipment that could be deployed during a GIUE.

In some areas of the Alaska OCS, it is unlikely that the operator would request or receive approval for dispersant use (e.g., in shallow water depths of the Beaufort Sea). However, in the event that the operator has received authority to apply dispersants (as identified in their approved OSRP), then BSEE could require the operator to demonstrate their ability to carry out a dispersant application.

Table 1. Countermeasures, Associated Tactics, and Potential GIUE Equipment Deployments

Countermeasure Type	Associated Tactics	Potential GIUE Equipment Deployed
Tracking and Surveillance	Tracking and Surveillance Tactics • Aerial tracking of spill • Subsurface/sub-ice tracking of spill • Deployment of buoys • Sample collection	• Aircraft, vessels, all-terrain vehicles (ATV), snowmachines, unmanned aircraft system, remotely operated underwater vehicles (ROVs) • Heavy machinery • Handheld equipment
Mechanical	Deflection and/or containment tactic • Booming • Barriers, dams, pits, trenches • Culvert blocking	• Boom, anchor system • Vessels, ATVs, heavy machinery • Trenchers • Heavy equipment • Pumps, hoses • Portable tanks
	Recovery Tactics • Booming • Skimming • Vacuuming • Sorption • Temporary storage • Lightering/offloading	• Boom, anchor system • Skimmers • Pumps, hoses • Vessels, ATVs, snowmachines, heavy machinery, snowblowers • Vacuums, heavy equipment • Sorption booms, pads, sweep, roll • Hand equipment • Temporary storage containers
Non-Mechanical	In-situ burning tactic • In-situ burning	• Igniters • Aircraft, vessels, ATV, vehicles, heavy equipment • Fire boom, anchor system
	Dispersant tactic • Dispersant application	• Aircraft, vessels • ROVs • Spotter aircraft

5.4 BSEE Spill Response Initiatives

BSEE conducts oil spill response research and manages the Oil and Hazardous Materials Simulated Environmental Test Tank (OHMSETT) facility. For more than 35 years, BSEE has maintained a comprehensive, long-term research program to improve upon the knowledge, technologies, and methodologies used for the detection, containment, treatment, and cleanup of oil spills that may occur on the OCS. These activities, undertaken by the BSEE Oil Spill Response Research (OSRR) program, comply with the research and development provisions of Title VII in OPA.

5.4.1 BSEE Oil Spill Response Research

BSEE's OSRR program is the principal federal source of oil spill response research. The program's primary areas of research are mechanical containment and recovery, dispersant effectiveness and other chemical interactions, in-situ burns and other combustion issues, remote sensing, and decision-making support tools. The intent of this research is to make this information widely available to oil spill response

personnel and organizations worldwide by disseminating their findings through a variety of public forums such as workshops, conferences, peer-reviewed publications, and the internet.

Funding for the OSRR program activities is appropriated from the Oil Spill Liability Trust Fund. BSEE plans and implements research projects that have multiple phases in a stepwise approach over several years, enabling the agency to secure cooperative funding from private industry as well as countries that have offshore regulatory programs. The BSEE OSRR program monitors and capitalizes on the efforts of other agencies and industry, whenever possible, through active collaboration.

BSEE coordinates oil spill research closely with the National Oceanic and Atmospheric Administration (NOAA), the USCG, and the USEPA through participation on the National Response Team and on the Interagency Coordination Committee for Oil Pollution Research. This allows BSEE to foster collaborative research at the national and international level, optimize current and future research initiatives, minimize research duplication, and ensure that BSEE's interests are addressed.

Partnering has reinforced BSEE's oil spill response research and development and encouraged oil spill technology development efforts by both academia and industry. BSEE has also participated in the exchange of technological information with Canada, France, Germany, Japan, Norway, and the United Kingdom through cooperative research projects, workshops, and technical meetings. BSEE, in addition to other U.S. and foreign government agencies and organizations worldwide, uses the results from the OSRR program and OHMSETT to help make planning, regulatory, and emergency response decisions.

BSEE either conducts in-house research at the BSEE OHMSETT facility, or manages research projects conducted by external experts. This research is subjected to rigorous peer review protocols to ensure integrity and strives to meet the following objectives:

- Advance the state of science and technology used in responding to offshore oil spills.
- Measure the technology readiness levels of new and innovative oil spill response equipment.
- Maintain the highest level of scientific integrity of research funded and led by BSEE’s OSPD.
- Accelerate integration of research findings into practical application by government and industry through information transfer.

BSEE has conducted over 30 projects directly related to improving equipment and processes for the prompt identification and removal of oil from Arctic environments. The OSRR program has partnered with those who share similar interests in Arctic oil spill response research. The OSRR projects reflect an expanding body of work that has advanced knowledge of oil spill response capabilities in cold-water environments. Many of these projects were conducted at OHMSETT and ranged from mechanical containment and recovery in ice conditions to dispersant use in cold water.

5.4.2 OHMSETT National Oil Spill Response and Renewable Energy Test Facility

The passage of OPA significantly expanded BSEE's role in oil spill response testing and training. Title VII of OPA mandated the reactivation of the National Oil Spill Response Test Facility, OHMSETT, located in Leonardo, NJ (Figure 6). The Interagency Coordinating Committee on Oil Pollution Research (created by OPA) delegated this responsibility to the MMS (now BSEE). OHMSETT is the only facility in North America where full-sized oil spill response equipment can be tested and training of first responders can be conducted with a variety of oils in a simulated marine environment under controlled conditions. The primary feature of OHMSETT is a large, outdoor, aboveground concrete test tank that measures 667 feet long by 65 feet wide by 11 feet deep. It is filled with 2.6 million gallons of salt water. OHMSETT is also the training site for spill response personnel from state and federal government agencies, private industry, and foreign countries. This includes the USCG Strike Team personnel. BSEE now manages OHMSETT as part of its mandated requirements to ensure that the best and safest technologies are used in offshore oil and gas operations.

Figure 6. Oil and Hazardous Materials Simulated Environmental Test Tank, Leonardo, NJ

The facility provides an environmentally safe place to test oil spill response equipment and train responders. Many of today's commercially available oil spill cleanup products and services were tested at OHMSETT, either as off-the-shelf commercially available equipment, or as equipment or technology still under development. In North America, a large portion of existing independent performance data and information on containment booms and skimmers was obtained through testing at OHMSETT. BSEE has expanded the capabilities of OHMSETT to test all types of oil spill response equipment and techniques, including a simulated Arctic environment for cold-water testing and training. This capability allows OHMSETT to remain operational year round. OHMSETT is also capable of testing and evaluating fire resistant containment booms using an air-injected propane burner system that realistically simulates in-situ burning at sea. Finally, there is the capability to conduct effectiveness testing on a variety of chemical treating agents, dispersants, emulsion breakers, and sorbent products.

6 INDUSTRY OIL SPILL RESPONSE PLANNING

Industry oil spill response planning extends well beyond any single OSRP submitted to BSEE for approval (Section 5.3.1) and is outside the scope of this report. However, an overview of the recent research efforts of the oil and gas industry, their use of OSROs, and the roles select OSROs perform in Alaska is helpful to understand oil spill response on the Alaska OCS.

6.1 Industry Research

The Interagency Coordinating Committee on Oil Pollution Research (ICCOPR, 2015), in its *Oil Pollution Research and Technology Plan Fiscal Years 2015-2021*, identified industry and its associated organizations conducting research related to oil spill preparedness, prevention, and response. This report highlights three industry organizations that completed a suite of reviews and published a series of technical reports and fact sheets.

6.1.1 Joint Industry Oil Spill Preparedness and Response Task Force

In 2010, the petroleum industry launched a Joint Industry Oil Spill Preparedness and Response Task Force to examine their ability to respond to a Spill of National Significance (as defined by the National Contingency Plan) and the actual response to the Deepwater Horizon oil spill (JITF, 2010). The task force used subject matter experts to identify best practices in oil spill response and produced a series of reports and fact sheets on the following subjects (www.oilspillprevention.org/response library):

- Oil spill response planning
- Oil sensing and tracking
- Dispersants
- In-situ burning
- Mechanical recovery
- Shoreline protection
- Alternative response technologies
- Inland

6.1.2 International Petroleum Industry Environmental Conservation Association

The International Petroleum Industry Environmental Conservation Association and the International Association of Oil and Gas Producers collaboratively worked on a Joint Industry Project on oil spill response from 2011-2016 and published a number of good practice guidance documents and technical reports on the following subjects (www.ipieca.org/resources):

- Good practice guides covering response, strategy, preparedness, and impacts
- Technical reports on dispersant licensing and approvals, dispersant logistics, in-situ burning equipment, post-spill monitoring, oil spill response preparedness for offshore installations, OSRO assessment, and volunteer management case studies, among others
- Small research projects

6.1.3 Arctic Oil Spill Response Technology Joint Industry Programme

The Arctic Oil Spill Response Technology Joint Industry Programme, initiated in 2012, was a 5-year collaborative effort to improve Arctic spill response capabilities through technical assessments, state of knowledge reviews, and experiments (Mullin, 2018). Sixteen research reports identify and summarize the state of knowledge and regulatory status of aspects of spill response on the following subjects: (www.arcticresponse.wpengine):

- Dispersants
- Environmental effects
- Trajectory modeling
- Remote sensing
- Mechanical recovery
- In-situ burning

6.2 Oil Spill Removal Organizations

An oil spill removal organization provides oil spill response resources to remove oil from the environment or mitigate associated impacts. OSROs include, but are not limited to, providers for source control, mechanical recovery, dispersants, bioremediation, in-situ burning, or other spill countermeasures. OSROs also include any for-profit or not-for-profit contractor, cooperative, or in-house provider established in a geographic area to provide oil spill removal resources required by regulation (USCG, 2016).

Under the USCG's voluntary OSRO classification program, OSROs may submit documentation regarding their equipment and response capabilities for review and verification by the USCG. The USCG issues OSROs classification levels based on the amount of response equipment, recovery capacity, temporary storage capacity, and response times for a geographic area. The OSRO classification process represents standard guidelines by which the USCG and plan holders can evaluate an OSRO's capability to respond to oil spills of various sizes. OSROs may receive classifications for different spill sizes occurring in different types of operating areas (rivers or canals, near shore, offshore, or open ocean). An OSRO must meet the minimum criteria in all categories to receive a rating for a specific level.

Section 4202 of OPA amended the Federal Water Pollution Control Act to require the preparation and submission of response plans by owners or operators of certain oil handling facilities and for all tank vessels. For certain industrial facilities and vessels that store oil, OSROs may be contracted to provide the personnel and equipment necessary to respond to an oil spill. If an OSRO has been evaluated by the USCG and its capability is equal to or exceeds the response capability needed by companies, the response plan may identify only the OSRO, and need not list all of the information about response personnel and equipment (USCG, 2013).

Multiple OSROs are located in Alaska, but this report highlights only those five related to the petroleum industry through a mutual aid agreement. The Association of Petroleum Industry Co-op Managers has a mutual aid agreement to provide equipment and personnel to its members on an as-available basis. The five Alaskan members of the Association of Petroleum Industry Co-op Managers are shown in Figure 7 and discussed in Sections 6.2.1–6.2.5 (Alaska Clean Seas, 2017a).

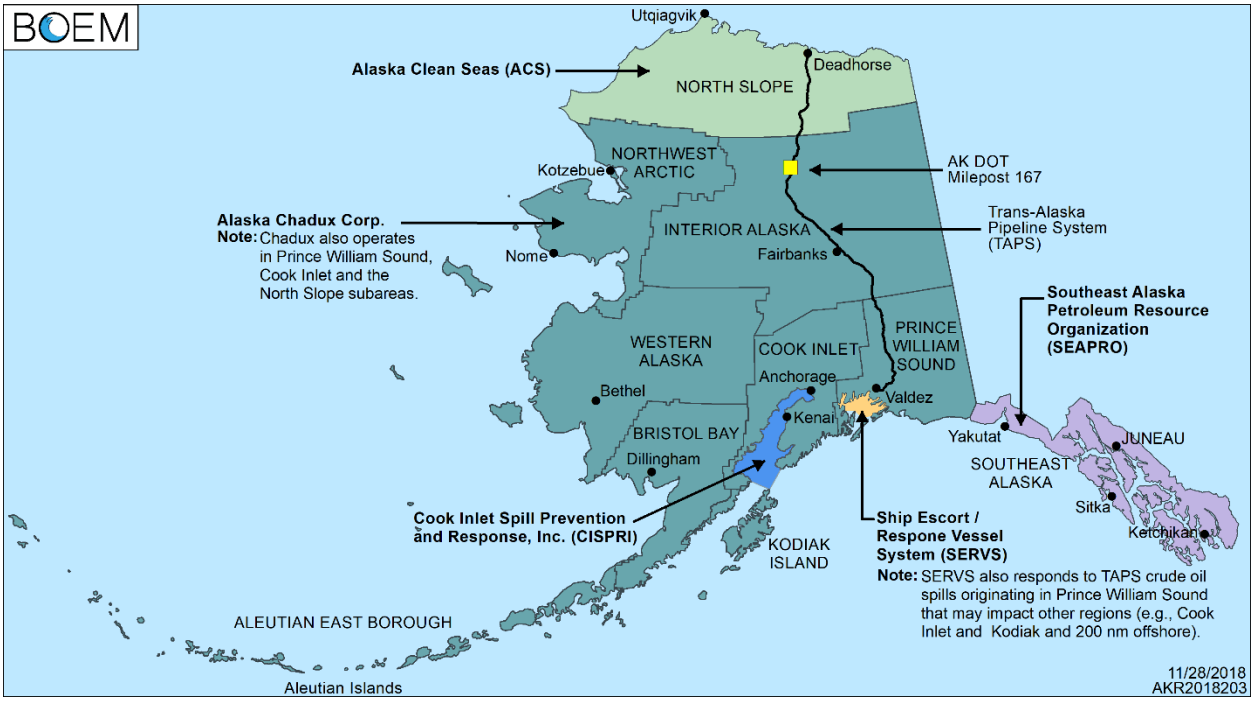

Figure 7. Association of Petroleum Industry Co-op Managers Located in Alaska

6.2.1 Alaska Clean Seas

Alaska Clean Seas (ACS) is a non-profit, incorporated oil spill response cooperative whose current membership includes oil and pipeline companies on the North Slope of Alaska (ACS, 2018). ACS holds a USCG mechanical OSRO classification for river or canal, inland, and nearshore operating environments and is also a State of Alaska Primary Response Action Contractor for the North Slope. Because the majority of current North Slope oil and gas activities occur onshore or relatively close to shore, ACS specializes in nearshore and limited offshore oil spill response. ACS operates on Alaska's North Slope and selected areas of the Alaska OCS and adjacent shorelines, and the Trans-Alaska Pipeline from Pump Station 1 in Deadhorse to Milepost 167. ACS owns and maintains 50 percent of the oil spill response equipment on the North Slope, which is located primarily in Deadhorse.

ACS' purpose and mission is to provide personnel, material, equipment, and training response capability for use in support of its members in preparing for, responding to, and cleaning up an oil spill on the North Slope. Under ACS bylaws, all members are entitled to call upon them and receive assistance in the above activities, and when authorized by the Board of Directors, ACS may respond to non-member spills (ACS, 2018). The *Alaska Clean Seas Technical Manual* consists of two volumes: *Volume 1: Tactics Descriptions* and *Volume 2: Map Atlas* (ACS, 2017a,b). These manuals provide a detailed source of information pertaining to spill response variables on the North Slope of Alaska, including: 1) spill response tactics in a variety of conditions and seasonal variations and, 2) maps of resources at risk from a spill. The technical manual grew out of the work of the Industry/Agency North Slope Spill Response Project Team and was first developed in 1997.

6.2.2 Alyeska Pipeline Service Company

Alyeska Pipeline Service Company (Alyeska) has a mechanical OSRO classification for inland, ocean, nearshore, and offshore operating environments and a dispersant OSRO classification for Prince William Sound. Additionally, Alyeska is a State of Alaska Primary Response Action Contractor for Prince William Sound. Alyeska is the primary response action contractor responsible for the implementation

aspects of the pipeline, terminal, or tanker plan. For any Alyeska or Alaska crude oil shipping company tanker plan, the Ship Escort/Response Vessel System (SERVS) provides oil spill response and preparedness capabilities. SERVS maintains oil spill response equipment and crews staged throughout key areas around Prince William Sound 24 hours a day, 365 days a year. SERVS has a technical manual, and personnel participate in various spill response drills and exercises.

6.2.3 Cook Inlet Spill Prevention & Response, Inc.

Cook Inlet Spill Prevention & Response, Inc. (CISPRI) has a mechanical OSRO classification for river or canal, inland, nearshore, and offshore operating environments and is a State of Alaska Primary Response Action Contractor serving the Cook Inlet region of Alaska (CISPRI, 2018). CISPRI is a member-owned, non-profit corporation providing oil spill planning, training, and response services to facilities and vessels throughout the region. CISPRI has developed a technical manual containing spill response tactics and supporting information to guide field response activities (CISPRI, 2017). The technical manual includes tactics for safety, open water response, nearshore response, shoreline cleanup, inland response, tracking and surveillance, dispersant and in-situ burning application, sensitive area protection, wildlife response, waste management, and logistics and planning. CISPRI maintains an inventory of response resources strategically located in caches throughout the Cook Inlet region. In addition to CISPRI's extensive equipment cache, mutual aid agreements are in place to supplement response capabilities.

6.2.4 Alaska Chadux Corporation

Alaska Chadux Corporation has a mechanical OSRO classification for river or canal, inland, nearshore, and offshore operating environments and is registered with the state as a Primary Response Action Contractor for all regions (Alaska Chadux Corp., 2018). Response resources are available for deployment 365 days per year and are located in Prince William Sound, Cook Inlet, Kodiak Island, the Aleutian Islands, Bristol Bay, Western Alaska, Northwest Arctic, and the North Slope.

6.2.5 Southeast Alaska Petroleum Resource Organization

Southeast Alaska Petroleum Response Organization (SEAPRO) has a mechanical OSRO classification for inland and nearshore operating environments. It is a member-owned non-profit corporation serving the oil spill response needs of various facilities and vessels throughout the Southeast Alaska region (SEAPRO, 2018). SEAPRO's mission is to provide oil spill response at the direction of its members. SEAPRO has developed a technical manual containing spill response tactics and supporting information to guide field response activities (SEAPRO, 2017).

7 DESCRIPTION OF POTENTIAL RESPONSE ACTIONS

A number of potential response actions could be implemented in the event of an oil spill. An operator is required to immediately implement their OSRP and notify the National Response Center of the spill, regardless of volume. In the Alaska OCS Region, as elsewhere on the OCS, if the suspected spill volume is 1 barrel (42 gallons) or greater, the operator must orally notify the BSEE Regional Supervisor of Field Operations without delay. In addition, the operator must mobilize sufficient equipment and personnel to control, contain, and clean up the spill to the greatest extent possible.

Oil spills can vary in size, impact, and required levels of response. Tiered response refers to the efficient management of incidents so that they are handled at the lowest possible jurisdictional level and supported by additional capabilities only when needed. Oil spill response is scaled to include a series of cascading resources designed to respond to small, localized incidents; moderate incidents; and up to large-scale events (such as loss of well control escalating into a long duration blowout that can impact hundreds of miles of coastline) (IPIECA and IOGP, 2015).

In Alaska, the effectiveness of source control, containment, or response and cleanup operations is highly dependent on volume, oil type, location, weather, and time of year. During winter, the Arctic Ocean, Bering Sea, and portions of the Cook Inlet ocean surface freezes. A small spill occurring during winter on solid ice or frozen tundra may be readily cleaned up using conventional land-based equipment resulting in a near 100 percent recovery rate. Spills to open-water or broken-ice conditions may result in lower recovery rates of 10 to 30 percent of the spilled oil (Gundlach and Boehm, 1981; Gundlach et al., 1983; Lubchenco et al. 2010; Wolfe et al., 1994). Arctic spill response options are summarized by Potter et al. (2012), the National Research Council (NRC, 2014), the National Petroleum Council (NPC, 2015), SINTEF (Sørstrøm et al., 2010), and the Emergency Preparedness, Prevention, and Response Working Group of the Arctic Council (EPPR 2015, 2017).

No single method of containment or countermeasures is 100 percent effective. Each spill is characterized by a set of unique and dynamic conditions that influence the selection of site-specific and situational response options, necessitating a variety of approaches (Walker, 2017). As a result, spill containment, response, and cleanup is a complex and evolving technology (EPPR, 2015; Fingas, 2017b).

Offshore spill response efforts could require multiple technologies, including surveillance and monitoring, source containment, mechanical countermeasures, and non-mechanical countermeasures. Even with the deployment of all of these spill response countermeasures, it is likely that, with the operating limitations of today's spill response technology, not all of the oil can be contained and removed offshore. If oil reaches shore, other spill countermeasures are used.

7.1 Supporting Activities

Supporting activities include surveillance and monitoring, waste management, and wildlife response, and occur regardless of whether an oil spill happens offshore, nearshore, along the shore, or onshore.

7.1.1 Surveillance and Monitoring

Effective response requires an understanding of the location, extent, thickness, and movement of spilled oil. The Incident Command, a standardized emergency management organizational structure, uses surveillance and monitoring information to prioritize the response and direct cleanup resources, and to provide information for the protection of sites. A combination of airborne (helicopters and fixed wing aircraft) and satellite surveillance is useful for monitoring a surface oil spill (Fingas and Brown, 2017; IPIECA, IMO, and IOGP, 2015). In-water surveillance from vessels and autonomous underwater vehicles (AUVs) of various sizes is useful for monitoring a subsea spill (IPIECA and IOGP, 2017). Instruments are deployed from vessels or attached to AUVs to sample and collect subsurface data. A number of technologies have the potential to detect and map oil on, under, or within sea ice (Pegau, Garron, and Zabilansky, 2016; Watkins, Allen, and Ellis, 2016; Wilkinson et al., 2017). Tracking buoys help follow the oil with the ice.

Samples, which are collected for a variety of reasons, provide data to characterize the oil. The oil's physical and chemical characteristics begin to change immediately after a spill through a process called weathering. Oil weathering affects spill response options by varying the amount of oil and its properties (Federici and Mintz, 2014). Oil weathering can influence whether certain countermeasures are viable (Hollebone, 2017). Environmental factors such as high seas, sea ice, or cold temperatures can influence how rapidly oil weathers (Fingas and Hollebone, 2014). Response strategies such as chemical agents or in-situ burning can transform oil from one sector of the environment to another (e.g., transform oil from the surface of the water to the atmosphere) and change its physical and chemical characteristics.

7.1.2 Waste Management

Waste handling and associated activities are common to all response actions apart from natural recovery. The Area Contingency Plans discuss the management and disposal of wastes generated during a response

to an oil spill (USEPA and ADEC, 2018, Section 3204; USCG and ADEC, 2018a,b,c, Section 3204). Depending on the size of the spill, response actions can produce large volumes of waste (e.g., contaminated soils, contaminated debris, used sorbents and booms, personal protection equipment) that must be handled, stored, decontaminated, transported, and/or disposed of properly. Protocols that comply with state and federal regulations are available for the storage and transfer of all solid, hazardous, or petroleum wastes generated during recovery and cleanup activities in order to minimize the reintroduction of wastes into the environment. Waste management could include vessels, barges, staging areas, transport to refineries, landfills, open burning, or incineration.

7.1.3 Wildlife Response

Wildlife protection responses are implemented when wildlife are threatened by exposure to a spill (ARRT, Wildlife Protection Committee, 2012; ACS, 2017a; IPICEA and IOGP, 2014a). Trained personnel conduct wildlife protection under a federal permit. Measures may involve the use of wildlife deterrents (i.e., hazing); pre-emptive capture and relocation of uncontaminated wildlife; capture, treatment, and subsequent release of contaminated wildlife, if appropriate; and recovery of contaminated carcasses to prevent the recontamination of other wildlife. Wildlife hazing, such as visual and auditory deterrents and physical barriers could prevent animals from nearing spilled oil. Transport of wildlife could be by vessels, aircraft, or vehicles. Staging areas for stabilization include holding modules, cleaning facilities, medical facilities, and other support accessories.

The Area Contingency Plans include the Wildlife Protection Guidelines for Alaska (USEPA and ADEC, 2018, Section 9760; USCG and ADEC, 2018a,b,c, Section 9760). Additionally, the Arctic Marine Mammal Disaster Response Guidelines address disaster response activities specific to NOAA marine mammal trust species in Arctic Alaska, defined as the Bering Strait, northern, and northwestern regions, and provide regionally specific communication and response strategies (NOAA, 2017). Additional response planning information is available for the USFWS trust species including polar bears and migratory birds (Majors, Miller, and Shannon, 2014; USFWS, 2003, 2015).

7.2 Offshore and Nearshore Countermeasures

Offshore and nearshore countermeasures occur before a spill contacts the shoreline and include mechanical and nonmechanical countermeasures. Responders use mechanical countermeasures to stop the flow of oil, or to capture and store the spilled oil until it can be disposed of properly. Non-mechanical countermeasures involve application of chemical agents on the oil spill, or in-situ burning. Non-mechanical response methods require special authorization or approval by state and federal authorities.

7.2.1 Mechanical Countermeasures

Mechanical countermeasures include source control and containment, and mechanical recovery. Mechanical recovery is a preferred countermeasure for responding to marine oil spills in open water or on solid landfast ice because it removes oil from the environment. It is mandated as the primary technique in many jurisdictions through legislative action (e.g., State of Alaska). However, offshore mechanical recovery in open water or broken ice rarely exceeds 10 to 30 percent of the spilled oil volume (Gundlach and Boehm, 1981; Gundlach et al., 1983; Lubchenco et al., 2010; Wolfe et al., 1994).

Source Control and Containment

Second only to protecting human life and safety, when an oil spill occurs, the priority is to stop the pollution at its source. Source control and containment equipment prevents additional spillage beyond the initial amount. Source control pertains to any potential discharge source including wells, storage vessels, pipelines, and others. Source control and containment is particularly important for a loss of well control escalating into a long duration blowout. For floating facilities located seaward of the coast, supporting

equipment and collocated equipment must include, but is not limited to, the following (30 CFR § 250.462):

- Subsea containment and capture equipment, including containment domes and capping stacks
- Subsea utility equipment including hydraulic power sources and hydrate control equipment
- Collocated equipment including dispersant injection equipment
- Riser systems
- Remotely operated vehicles
- Capture vessels
- Support vessels
- Storage facilities

For Arctic gravel islands, source control may utilize a surface capping stack, surface utility equipment, or intentional well ignition.

Mechanical Recovery

Mechanical recovery includes the physical removal of oil from the sea surface, typically accomplished using containment booms, skimmers, direct suction, sorbents, temporary storage, separation, and disposal. Booms, long floating barriers that are deployed on the sea surface and positioned within or around an oil slick, contain and concentrate the oil into a pool thick enough to permit collection by a skimmer or a vacuum. Skimmer and vacuum equipment ranges from small, portable units to large devices mounted on barges or vessels. Skimmers are also a specific type of vessel. The recovered oil is transferred to a storage vessel (e.g., barge or tanker) and subsequently transferred to shore, and then the continental U.S. for appropriate recycling or disposal.

Increasing amounts of broken ice generally limit or prevent the effective use of traditional mechanical cleanup methods in responding to large oil spills. However, mechanical recovery is still considered a first line of defense and plays an important role in responding to smaller spills contained by ice (Dickins, 2015). High capacity arctic skimmers were recently developed and tested for oil recovery in broken ice while operating at low temperatures (Sørstrøm et al., 2010; Schmidt, Meyer, and Potter, 2014). Advanced arctic skimmer designs include improved oil and ice processing; ability to handle larger volumes of cold viscous oil and oil/ice mixtures with low water uptake; and heating of critical components to prevent freezing. Various viscous oil pumping systems and techniques facilitate efficient transfer of cold and viscous oil-water mixtures and small ice pieces (Potter et al., 2007; Hvidbak, 2001; Fleming and Hyde Marine, 2003).

Mechanical recovery in open water or broken ice includes the use of vessels, barges, skimmers, or tankers. Mechanical recovery on solid landfast ice includes heavy equipment such as front-end loaders, dump trucks and bobcats, and snowblowers and snowmachines to remove frozen surface material (ACS, 2017a).

7.2.2 Non-Mechanical Countermeasures

Non-mechanical countermeasures to combat an oil spill include dispersants, surface collecting agents, and in-situ burning. Some non-mechanical oil spill response methods involve application of chemical countermeasures to treat and minimize the environmental impacts of the oil spill. Non-mechanical countermeasures require joint approval by both state and federal authorities. These tactics are used when mechanical response is not achievable, or when the spill response must be intensified due to the size and complexity of the spill.

Dispersants

Dispersants are a chemical treating agent that are a combination of solvents and surfactants applied to oil to promote the dispersion process and form smaller oil droplets (Fingas, 2011b). Solvents help keep the chemicals mixed and dissolve into the oil, and surfactants allow the water and oil to mix easily (Graham et al. 2016; John et al., 2016). Following the application of a dispersant, smaller oil droplets remain submerged rather than rising to the sea surface and reforming oil slicks that may spread and potentially contact land (NRC, 1989). Dispersion into smaller droplets results in greater surface areas available for microbial degradation and eventually dissolution. An evaluation of the use of chemical dispersants in oil spill response is currently ongoing by the National Academy (2018). The Alaska Regional Contingency Plan, Appendix III includes the Dispersant Use Plan for Alaska (ARRT, 2018, Appendix III). Dispersants may be applied using low-flying aircraft or from offshore vessels for surface spills. They may also be applied directly at a subsea source using a remotely operated vehicle. Additional aircraft are used to observe and evaluate the dispersant application.

Surface Collecting Agents

Surface collecting agents are chemical agents that form a surface film in order to control the oil layer thickness and facilitate burning or collection. These agents spread rapidly over a water surface, corralling the oil into smaller areas and thicker layers. Surface-active chemicals (surfactants) are sometimes called oil herders, or oil collecting agents. The use of specific surface-active chemicals to clear and contain oil slicks on the surface of water has been studied since the 1970s (SL Ross Environmental Research, 2012). A class of oil herders are now available commercially. In drift ice, they can be used to contract and thicken oil slicks for ignition and efficient in-situ burning without the need for fire booms, even if the slick has spread too thin to ignite (SL Ross Environmental Research Ltd and Danish Center for Energy and Environment, 2015). For application in loose pack ice, the intention is to herd freely drifting oil slicks to a burnable thickness, then ignite them (Buist et al., 2011, 2017). The herders work, in conjunction with the limited containment provided by the ice, to allow an extended window of opportunity for burning.

In-Situ Burning

In-situ burning is the intentional, controlled burning of oil without physically removing the oil first (API, 2015a,b; Fingas, 2017a; IPICEA and IOGP, 2016). It can be used on lakes, streams, and oceans; with or without ice; onshore; or on wetlands/marshes with only a few centimeters of water. The Alaska Regional Contingency Plan, Appendix IV includes the In-situ Burning Guidelines for Alaska (ARRT, 2018, Appendix IV).

In-situ burning removes surface oil by transferring it into the atmosphere in the form of combustion gases and soot. The material that remains after an in-situ burn naturally extinguishes, is depleted of the lighter more toxic petroleum constituents, and contains elevated concentrations of heavier compounds, which may sink. By reducing the volume of spilled oil, there is a reduction in the collection, storage, transport, and disposal of recovered oil. The ignition of spilled oil uses helicopters with helitorches, or vessels and hand held igniters. In-situ burning on water typically involves vessels towing fire booms to encounter and contain the oil to sufficient thickness. In-situ burning on ice uses ice or boom to contain the oil. Additional aircraft or vessels could operate as spotters and provide feedback to pilots and burn operation supervisors.

7.3 Onshore and Shoreline Assessment and Countermeasures

Onshore and shoreline assessment and countermeasures are exercised when an onshore or offshore spill contacts the onshore areas or the shoreline. Spilled oil moves slowly on land and flows downslope to depressions including rivers, streams, or lakes. On offshore waters, spilled oil moves with the winds and currents, if not contained, and may eventually contact shoreline. Following an oil spill, onshore and shoreline assessment along with a variety of countermeasures are undertaken to understand the extent of

the oil spill contamination, and to protect areas from oil or remove oil contamination. The Area Contingency Plans, Section 3230, titled Shoreside Recovery, include shoreline cleanup options, pre-beach cleanup, and storage (USEPA and ADEC, 2018; USCG and ADEC, 2018a,b,c). Below are some commonly used onshore and shoreline assessment and countermeasures.

7.3.1 Onshore and Shoreline Assessment

Before initiation of an onshore or shoreline response and cleanup plan, the type of oil, degree of impact, and the type of onshore area or shoreline is evaluated (IPICEA and IOGP, 2014b; NOAA, 1994). A shoreline assessment is conducted by Shoreline Cleanup Assessment Technique (SCAT) team members (NOAA, 2013). The SCAT team systematically surveys affected shoreline to generate information to: document the extent and degree of shoreline oiling; recommend cleanup methods; evaluate the effectiveness of cleanup methods; and develop cleanup endpoints and guidelines to determine when cleanup activities should be terminated. SCAT teams use aircraft, vessels, heavy equipment, vehicles, or ATVs to reach impacted shoreline or onshore areas depending on ease of access.

State and federal mapping projects have categorized much of the Alaska shoreline in terms of habitat and/or sensitivity to spilled oil (Mutter et al., 2003; NOAA, 2010, 2018). Mapping assessments are conducted to ensure readiness in the event of an accidental spill. The oil and gas industry has mapped onshore and coastal areas where activity occurs onshore on the North Slope (ACS, 2017b). The NOAA Environmental Sensitivity Index ranks shorelines' relative sensitivity to oil spill impacts, predicted rates of removal of stranded oil from the shoreline by natural processes such as waves and currents, and ease of cleanup.

ShoreZone is a standardized coastal habitat mapping system that covers the supratidal, intertidal, and some subtidal areas of large sections of the Alaska coast (Harper and Morris, 2014). ShoreZone serves alongside NOAA's Environmental Sensitivity Index maps and data as coastal habitat baseline information for oil spill response in Alaska (Harper and Morrow, 2014).

In Alaska, geographic response strategies were prepared for high-risk sensitive areas by work groups consisting of representatives of oil industry; spill response organizations; federal, state, and local agencies; tribal entities; and citizens' groups (Mutter et al., 2003). Geographic response strategies combine local knowledge of sensitive areas with proven operations and logistics into a document with specific guidance for rapid response for use in the field. These geographic response strategies are included in each of the four Area Contingency Plans (USEPA and ADEC, 2018, Section 9740; USCG and ADEC, 2018a,b,c, Section 9740).

7.3.2 Booms, Sorbents, and Fixed Barriers

Booms, sorbents, and fixed barriers contain, collect, or divert oil to protect resources (USEPA, 1999; ITOPF, 2011a). Booms are used to divert spilled oil from shorelines, or to collect oil that is flushed into the immediate waters and skimmed for removal. Sorbents are specialized materials engineered to collect oil, but not water, and are manufactured in a variety of forms such as square pads or long booms. Fixed barriers include geotextile, plastic, or solid barriers. Berms and dams are constructed with a wide variety of materials, including soil, gravel, snow, sand bags, oil boom, timbers, or logs. Barriers and dams are used to contain a contaminated area, impede or divert the movement of oil, and create areas to collect oil for removal. Depending on the location, these materials are positioned by vessels, heavy equipment, ATVs, or vehicles.

7.3.3 Shoreline Flushing and Surf Washing

Shoreline flushing uses water to remove or refloat stranded oil, allowing it to be recovered using a skimmer on the water. Shoreline flushing equipment includes water pumps that use low-pressure water and discharge hoses, along with booms and skimmers.

Surf washing, also known as sediment relocation, is similar to shoreline flushing but uses the surf to provide large volumes of water. The released oil is collected with sorbents or fine mesh nets. Oil stranded above normal wave action can be removed and deposited in the surf zone in piles or berms using heavy equipment. Surf washing releases oil from contaminated sand, pebble, or cobble shorelines using the energy of the surf (ITOPF, 2011b; Kerambrun, Cariou, and Laruelle, 2014).

7.3.4 Surface Washing and Bioremediation Agents

A variety of chemical cleaners and bioremediation agents for oiled shorelines, which require special approval for their use, are available (Fingas and Fieldhouse, 2011). The USEPA has primary responsibility for the listing of products on the National Contingency Plan Product Schedule, regulated under subpart J of the National Contingency Plan (40 CFR § 300.920). An oil spill cleaning or bioremediation agent must be on the Product Schedule before it can be considered for use on a spill to federal waters.

Surface washing agents help soften and lift oil off surfaces or structures, such as beach rocks, docks, and riprap. During low tide, the oil is sprayed with the surface washing agent, left to soak for as long as possible, then washed off with a low-pressure water stream in an area that has been isolated using booms and skimmers.

Bioremediation can treat substrates contaminated with petroleum by facilitating the oil degrading capabilities of bacteria naturally occurring in the environment. Bioremediation agents often take the form of fertilizers that help speed up natural microbial degradation processes.

7.3.5 Contaminated Substrate, Vegetation, or Debris Removal

Oil that contacts the coastline can strand on shoreline substrate, vegetation, or debris. Stranded oil and contaminated materials are removed with a variety of implements depending on the type of shoreline or vegetation, texture of the material to be recovered, and access to the site. Removal of contaminated shoreline material uses heavy equipment as well as manual methods, such as buckets, shovels, rakes, and other hand tools. Where access is possible and will not cause damage to the shoreline or area, responders may bring in heavy machinery, such as backhoes or front-end loaders, to scoop up and haul away oiled materials in bulk. Oiled vegetation cutting and removal methods include weed trimmers, power hedge trimmers, and floating mechanical reed cutters (Michel and Rutherford, 2013). Clearing beach debris, prior to oiling, may allow the collected material to be disposed of at non-hazardous waste processing facilities, depending on local regulations (Research Planning Inc., 2014).

7.3.6 Natural Recovery

Responders choose natural recovery in cases where the natural flushing of the tides and degradation of the oil in place is the least harmful method of removing the oil, even though the process will be slower than with human intervention (NOAA et al., 2010). Oil may be left in place to degrade through weathering and natural removal, a process called natural recovery (Owens, 2017). In more sensitive environments (e.g., wetlands, tidal flats, tundra), cleanup activities can be more damaging to the environment than the spilled oil. It is common in these types of environments for oil to remain on the surface of the sediments. The disturbance caused by an active cleanup will often drive the contaminants below the surface making them available to plant root systems and the organisms that burrow into the sediments.

8 SUMMARY

Federal and state authorities work together to govern the oversight for responding to oil and hazardous spills in U.S. waters. Together, the National Response System, the Alaska Regional Contingency Plan, international joint contingency plans, and international agreements address spill prevention and response

on the Alaska OCS. These federal and state authorities, combined with the National Response System, determine how the USDOI, through BSEE and BOEM, specifically regulate the OCS in regard to spill prevention, preparedness, oil spill response plans, and initiatives. Industry response research and OSROs provide important information, equipment, and planning to support oil spill preparedness and response. Response actions and countermeasures include a wide variety of technologies and techniques. Implementing the proper oil spill response planning, prevention, and response, in an effort to protect the environment and public health and safety, is essential for an efficient oil spill response that mitigates oil pollution damage.

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APPENDIX A: LAWS RELATING TO OIL SPILL RESPONSE

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LAWS

The U.S. Department of the Interior (USDOI), Bureau of Ocean Energy Management (BOEM) (2016) summarized the Outer Continental Shelf (OCS) Regulatory Framework, and Bearden and Ramseur (2017) and Copeland (2016) summarized the Clean Water Act (CWA). Provided below, from those reports, and updated as necessary, is further information about the laws discussed in Section 2 of the Oil Spill Preparedness, Prevention, and Response on the Alaska OCS report that specifically relate to oil spill response.

Clean Water Act

The Federal Water Pollution Control Act, or Clean Water Act, is the principal law governing pollution of the nation's surface waters. The Federal Water Pollution Control Act was enacted on June 30, 1948, but was completely rewritten and modernized in an act entitled the Federal Water Pollution Control Act Amendments of 1972. The common name became the Clean Water Act with amendments in 1977. Prior to the Oil Pollution Act of 1990 (OPA), the CWA, Section 311, was the primary federal statute with the broadest authority governing oil spills, and many provisions continue to apply.

The 1972 amendments to the CWA added Section 311 to the statute. Section 311 of the CWA established requirements for oil spill reporting, response, and liability. The CWA also created a fund (311 Fund), maintained by federal appropriations, that could be used for cleanup and natural resource restoration. Executive Order (EO) 12777 was issued in 1991 and delegated the President's authorities for response to discharges of oil under Section 311 of the CWA, as amended in 1990 by OPA. Under the CWA, the U.S. Coast Guard (USCG) has the lead role in responding to discharges of oil from federal facilities or vessels within the coastal zone, regardless of other federal department or agency jurisdiction, custody, or control over that facility or vessel.

Oil Pollution Act

The Oil Pollution Act of 1990 (33 U.S.C. §§ 2701 *et seq.*) is comprehensive legislation that includes, in part, provisions to: (1) improve oil spill prevention, preparedness, and response capability; (2) establish limitations on liability for damages resulting from oil pollution; and (3) implement a fund for the payment of compensation for such damages.

OPA Section 4202 amended Subsection (j) of Section 311 of the CWA to expand federal spill response authority; increase penalties for spills; establish a USCG prepositioned oil spill response equipment site; require vessel and facility response plans; and provide for interagency contingency plans. Many of the statutory changes required corresponding revisions to the National Oil and Hazardous Substances Pollution Contingency Plan.

In October 1991, EO 12777 delegated the provisions of OPA to various departments and agencies within the U.S. Government, including the USCG, U.S. Environmental Protection Agency (USEPA), U.S. Department of Transportation, and USDOI. In addition, Section 4 of EO 12777, as amended, and in relevant parts, vests in the Secretary of the Department of Homeland Security, in which the USCG operates, the President's authority to implement OPA provisions. Accordingly, this authority has been re-delegated by the Secretary of Homeland Security to the USCG.

The Secretary of the Interior was delegated Federal Water Pollution Control Act authority over offshore facilities and associated pipelines (except deepwater ports) for all federal and state waters. The Secretary of the Interior's functions under the Executive Order include spill prevention, oil spill contingency plans, equipment, financial responsibility certification, and civil penalties. Under Secretarial Order 3299, BOEM

and the Bureau of Safety and Environmental Enforcement (BSEE) exercise this authority on behalf of USDOI.

If a spill, or substantial threat of a spill, of oil or a hazardous substance from a vessel, offshore facility, or onshore facility is considered to be of such a size or character to be a substantial threat to the public health or welfare of the United States, under provisions of OPA, the President (through the USCG) now has the authority to direct all federal, state, and private actions to remove a spill or to mitigate or prevent the threat of the spill. Potential impacts from spills of oil or a hazardous substance to fish, shellfish, wildlife, other natural resources, or the public and private beaches of the United States would be an example of the degree or type of threat considered to be of such a size or character to be a substantial threat to the public health or welfare of the United States. In addition, the USCG's authority to investigate marine accidents involving foreign tankers was expanded to include accidents in the U.S. Exclusive Economic Zone. OPA also established USCG oil spill district response groups (including equipment and personnel) in each of the 10 USCG districts, with a national response unit, the National Strike Force Coordination Center, located in Elizabeth City, North Carolina.

OPA strengthened spill planning and prevention activities by providing for the establishment of interagency spill contingency plans for areas of the United States. To achieve this goal, Area Committees composed of qualified federal, state, and local officials were created to develop Area Contingency Plans. OPA mandates that contingency plans address the response to a "worst case" spill or a substantial threat of such a spill. It also requires that vessels and both onshore and offshore facilities have response plans approved by the President. These plans must adhere to specified requirements, including demonstration of contracts with private parties to provide the personnel and equipment necessary to respond to or mitigate a "worst case" spill. In addition, OPA provided for increased penalties for violations of statutes related to oil spills, including payment of triple costs by persons who fail to follow contingency plan requirements.

Pursuant to OPA, double hulls are required on all newly constructed tankers. Double hulls or double containment systems are required on all tank vessels less than 5,000 gross tons (i.e., barges). The use of single-hull tankers in the United States began phasing out in 1995 in compliance with OPA. As of January 1, 2015, the United States phased out all single-hull tank vessels and all single-hull tank vessels with double sides or double bottoms that would operate by carrying bulk oil in both United States territorial waters and the U.S. Exclusive Economic Zone.

The Oil Spill Liability Trust Fund (OSLTF), authorized under OPA and administered by the USCG, is available to pay for removal costs and damages not recovered from responsible parties. The Fund provides up to $1 billion per incident for cleanup costs and other damages. The OSLTF was originally established under Section 9509 of the Internal Revenue Code of 1986. It was one of several similar Federal trust funds funded by various levies set up to provide for the costs of water pollution. OPA generally consolidated the liability and compensation schemes of these prior federal oil pollution laws and authorized the use of the OSLTF, which consolidated the funds supporting those regimes. Those prior laws included the Federal Water Pollution Control Act, Trans-Alaska Pipeline Authorization Act, Deepwater Port Act, and the Outer Continental Shelf Lands Act (OCSLA). On February 20, 1991, the National Pollution Funds Center was commissioned to serve as fiduciary agent for the OSLTF.

OPA further specifies that vessel owners, not cargo owners, are liable for spills, and establishes certain dollar amounts above which a responsible party is not liable for paying for the costs of an oil spill. These limits are based on the type and tonnage of a vessel. If a responsible party pays or incurs removal costs or damages in excess of an applicable liability limit, the responsible party may present a claim for compensation of the excess amount. The limits of liability for oil removal costs and damages that result from discharges or substantial threats of discharge of oil from vessels, under OPA (33 U.S.C. § 2704), were amended by the Consumer Price Index Adjustments of OPA Limits of Liability-Vessels and Deepwater Ports (80 FR 72342, November 19, 2015). Summarized below are the amended limits:

(1) For an oil cargo tank vessel greater than 3,000 gross tons with a single hull, including a single-hull tank vessel fitted with double sides only or a double bottom only, the liability limit is the greater of $3,500 per gross ton or $25,845,600.
(2) For a tank vessel greater than 3,000 gross tons, other than a vessel referred to in (1), the liability limit is the greater of $2,200 per gross ton or $18,796,800.
(3) For an oil cargo tank vessel less than or equal to 3,000 gross tons with a single hull, including a single-hull tank vessel fitted with double sides only or a double bottom only, the liability limit is the greater of $3,500 per gross ton or $7,048,800.
(4) For a tank vessel less than or equal to 3,000 gross tons, other than a vessel referred to in (3), the liability limit is the greater of $2,200 per gross ton or $4,699,200.
(5) For any other vessel, the liability limit is the greater of $1,100 per gross ton or $939,800.
(6) For a deepwater port, other than a deepwater port with a limit of liability established by regulation under 33 U.S.C. § 2704(d)(2), the liability limit is $633,850,000.
(7) For the Louisiana Offshore Oil Port, the liability limit is $96,366,600.

Offshore facilities are unique among the vessels and facilities covered under OPA. At 33 U.S.C. § 2704(a), OPA assigns unlimited liability to the responsible parties for removal costs resulting from an offshore facility oil spill incident, and only limits their liability for the damages that result from such a spill and that are covered by OPA (BOEM, 2016). In 1990, OPA provided that responsible parties for an offshore facility incident were liable for "the total of all removal costs plus $75,000,000" (33 U.S.C. 2704(a)(3)). To prevent the real value of the OPA limits of liability from declining over time as a result of inflation, and shifting the financial risk of oil spill incidents to the OSLTF, OPA requires that the President adjust the limits of liability "not less than every three years," by regulation, to reflect significant increases in the Consumer Price Index (33 U.S.C. 2704(d)(4)). This mandate, in place since 1990, preserves the deterrent effect and "polluter pays" principle embodied in OPA. The offshore facility limit of liability for OPA damages was raised on January 1, 2018, to $137.6595 million (83 FR 2540, January 18, 2018). Liability costs above $137.6595 million up to $1 billion are funded by the OSLTF. Under OPA, the responsible parties' liability for removal costs resulting from an offshore facility oil spill incident remains unlimited. In addition, willful misconduct, violation of any federal operating or safety standard, failure to report an incident, or refusal to participate in a cleanup may subject the spiller to unlimited liability under provisions of the Act.

OPA also provides that parties responsible for offshore facilities demonstrate, establish, and maintain Oil Spill Financial Responsibility (OSFR) for those facilities. OPA replaced and rescinded the OCSLA OSFR requirements. EO 12777 assigned the OSFR certification function to USDOI; the Secretary, in turn, delegated this function to BOEM. In accordance with 30 CFR part 553, the OSFR program administered by BOEM established requirements for demonstrating evidence of OSFR coverage for removal costs and damages caused by oil discharges and substantial threats of oil discharges from oil and gas exploration and production facilities and associated pipelines. OSFR applies to certain crude-oil wells, production platforms, and pipelines located in the OCS and state waters, and establishes legal identification of a responsible party(ies) to maintain OSFR for Covered Offshore Facilities according to acceptable methods outlined in 30 CFR part 553, subpart C.

As defined in BOEM's regulations under 30 CFR § 553.3, a Covered Offshore Facility is any structure and all of its components (including wells completed at the structure and the associated pipelines), equipment, pipelines, or devices (other than a vessel, pipeline, or deepwater port licensed under the Deepwater Port Act of 1974) used for exploring, drilling, or producing oil, or for transporting oil from such facilities. For a Covered Offshore Facility that is a pipeline, responsible party(ies) means any person owning or operating the pipeline; for a facility that is not a pipeline, responsible party(ies) means either the lessee or permittee of the area in which the Covered Offshore Facility is located, or the holder of a

right-of-use and easement granted under applicable state law or OCSLA (43 U.S.C. 1301-1356) for the area in which the facility is located (if the holder is a different person than the lessee or permittee). A federal agency, state, municipality, commission, or political subdivision of a state, or any interstate body that as owner transfers possession and right to use the property to another person by lease, assignment, or permit is not a responsible party. For an abandoned Covered Offshore Facility, responsible party(ies) means any person who would have been a responsible party for the facility immediately before abandonment, as defined in 33 USC 2701(32)(C), (E), and (F).

Each Covered Offshore Facility must have a Designated Applicant, as defined under 30 CFR § 553.3, meaning a person the responsible party(ies) designates to demonstrate OSFR coverage to BOEM for a Covered Offshore Facility on a lease, permit, or right-of-use and easement. Also contained within 30 CFR 553, subpart F, are the procedures for filing claims for spill-related compensation. In most cases, claims must first be presented to the responsible party, or Designated Applicant, that is the source of the incident resulting in the claim or its insurer, unless the United States issues notice that the claims should be presented to the OSLTF. A minimum of $35 million OSFR for Covered Offshore Facilities located on the OCS, and $10 million for those located in state waters must be demonstrated; however, it is not required to demonstrate OSFR in excess of $150 million (30 CFR § 553.12). Claimants may be compensated for loss of subsistence use of natural resources.

Certain types of vessels must also have a Certificate of Financial Responsibility before they can enter United States waters. The Department of Homeland Security now has the authority for vessel oil pollution financial responsibility, and the USCG regulates the oil spill financial responsibility program for vessels. A mobile offshore drilling unit is classified as a vessel. However, a well drilled from a mobile offshore drilling unit is classified as an offshore facility under this rule.

An Interagency Coordinating Committee on Oil Pollution Research was established by the provisions of OPA and tasked with submitting a plan for the implementation of an oil pollution research, development, and demonstration program to Congress. The plan was submitted to Congress in April 1992. This program addressed, in part, an identification of important oil pollution research gaps, an establishment of research priorities and goals, and an estimate of the resources and timetables necessary to accomplish the identified research tasks. In 1992, the program plan was also provided to the Marine Board of the National Research Council for review and comment as required by OPA. Upon review, the Marine Board recommended that the plan be revised using a framework that addresses spill prevention, human factors, and field testing demonstration of developed response technology. This was accomplished in April 1997. The Chairman of the lnteragency Committee is required, under Section 7001 of OPA, to submit to Congress every 2 years on October 30, a report on the activities carried out in the preceding 2 fiscal years and on activities proposed to be carried out in the current 2 fiscal year period. The last available report was published on June 11, 2016 (USCG, 2016).

Comprehensive Environmental Response, Compensation, and Liability Act of 1980

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (42 U.S.C. §§ 9601 *et seq.*), modified by the 1986 Superfund Amendments and Reauthorization Act and Section 1006 of OPA, requires the promulgation of regulations for the assessment of natural resource damages from oil spills and hazardous substances. These Acts provide for the designation of trustees who determine resource injuries, assess natural resource damages (including the costs of assessing damages), present claims, recover damages, and develop and implement plans for the restoration, rehabilitation, replacement, or acquisition of the equivalent of the injured natural resources under the trusteeship. CERCLA gave USDOI the authority to develop regulations and procedures for the assessment of damages for natural resource injuries resulting from the release of a hazardous substance or oil spills

(Natural Resource Damage Assessment regulations). These rulemakings are all codified at 43 CFR part 11. CERCLA specified two types of procedures to be developed: type "A" procedures for simplified, standard assessments requiring minimal field observations in cases of minor spills or releases in certain environments; and type "B" site-specific procedures for detailed assessments for individual cases.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) (42 U.S.C. §§ 6901 *et seq.*), as amended by the Hazardous and Solid Waste Amendments of 1984, provides a framework for the safe disposal and management of hazardous and solid wastes. The OCS wastes taken to shore are regulated under RCRA. The USEPA has exempted many oil and gas wastes from coverage under the hazardous wastes regulations of RCRA. Exempt wastes (exploration and production waste) include those generally coming from an activity directly associated with the exploration, drilling, production, or processing of a hydrocarbon product. The RCRA also requires hazardous waste treatment, storage, and disposal facilities to obtain permits and to demonstrate in their applications that design and operating standards established by the USEPA (or an authorized state) will be met. Therefore, most oil and gas wastes taken onshore are not regulated by the federal government but by various state programs. It is occasionally possible for a RCRA-exempt exploration and production waste to fail a state's waste disposal regulations. If wastes generated on the OCS are not exempt and are hazardous, the wastes must be transported to shore and/or the continental U.S. for disposal at a hazardous waste facility.

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Department of the Interior (DOI)

The Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors the Nation’s trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

Bureau of Ocean Energy Management (BOEM)

The mission of the Bureau of Ocean Energy Management is to manage development of U.S. Outer Continental Shelf energy and mineral resources in an environmentally and economically responsible way.