

DR&R

Dismantling and Removal of Offshore Oil and Gas Platforms and Restoration of the Impacted Environment in Alaska's Cook Inlet

**An Overview of
Requirements, Process, and Status of DR&R
for the Sixteen Cook Inlet Oil Platforms**

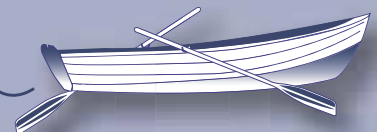


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Dismantling and Removal of Offshore Oil and Gas Platforms and Restoration of the Impacted Environment (DR&R) in Alaska's Cook Inlet

Overview of Requirements, Process, and Status of DR&R for the Sixteen Cook Inlet Platforms

February 2005

Executive Summary

A significant segment of the oil and gas industry activity in Alaska's Cook Inlet is represented by the operations of sixteen offshore production platforms, fourteen of which were installed during the 1960s. Most of the oil fields they tap are declining, and as production approaches a point of minimum economic viability, the question of removing the platforms becomes more prominent.

The operators of Cook Inlet's offshore platforms are required to dismantle and remove the platforms once they are abandoned and to restore the impacted environment after removal. The dismantlement, removal and restoration process is referred to as "DR&R". There have been no platforms dismantled and removed in Cook Inlet since the installation of the first platform forty years ago. However, the issue of how DR&R might proceed in Cook Inlet is an important one, given the fact that operations on four of Cook Inlet's offshore platforms have been suspended indefinitely. This report, which was prepared for the Cook Inlet Regional Citizens Advisory Council (CIRCAC), reviews the legal, regulatory, and cost issues associated with DR&R of Cook Inlet's offshore oil and gas platforms.

The DR&R process is governed by state statute and state and federal regulatory requirements as well as provisions contained in the platform unit and lease agreements. Federal laws set minimum standards for platform DR&R. But because all of the Cook Inlet platforms are located in state waters, federal authority to require DR&R is restricted to the general terms of the permits issued by the U.S. Army Corps of Engineers (USACE). The state requirements governing DR&R for oil and gas leases are limited to state regulations governing well plugging and abandonment, and provisions for DR&R contained in the lease and unit agreements between leaseholders and the state. The primary state agency with jurisdiction over DR&R operations – the Alaska Department of Natural Resources (ADNR) – has broad discretionary powers regarding platform DR&R.

Alternatives to DR&R include partial removal or retention of the platform for some alternative function. "Rigs to reefs" programs have been implemented elsewhere in the U.S., where abandoned oil and gas platforms are left intact or just partially removed to enhance fisheries habitat. Other options include using the abandoned platforms as marine research stations, bases for marine search and rescue operations, and centers for waste processing and disposal. There have also been proposals in other parts of the country to use abandoned platforms to anchor wind turbines for use in electric generation. In Cook Inlet, additional study would be necessary to determine whether full or partial removal or any one of the proposed alternatives is in the public's best interest.

Cost and liability are two major issues that arise when considering the question of platform DR&R. It is hard to estimate the cost of DR&R for Cook Inlet's platforms without knowing what will be required, but it will likely be in the millions of dollars. It is safe to say that current state bonding requirements for leaseholders do not offer enough of a surety to prevent companies from defaulting on their obligations for platform DR&R, particularly smaller companies with limited assets. Each leaseholder is required under state law to post a \$10,000 bond before undertaking any development on a leased tract and a \$500,000 statewide bond to cover operations on all state oil leases a company may hold. Responsibility for platform DR&R on state oil and gas lease tracts ultimately rests with the leaseholder at the time of platform installation, which is the point at which the DR&R obligations were acquired. Therefore, if a current operator were to default on its DR&R responsibilities, the original leaseholder is ultimately liable for completing the required DR&R. If the original leaseholder is a company that no longer exists, the liability passes to its successors or assigns, that is, the company that now holds its assets through merger or acquisition.

This report recommends several courses of action for CIRCAC to ensure that the state and federal agencies responsible for DR&R of Cook Inlet platforms address the public's concerns. CIRCAC should consider developing a feasibility report that addresses the engineering issues associated with the entire spectrum of DR&R options. CIRCAC could also advocate for full public review of the ADNRC and USACE regulatory processes associated with DR&R. In addition, CIRCAC should review annual plans of development and operations for the seven units and five leases outside of unit boundaries on which platforms are situated. Finally, CIRCAC should consider sponsoring a public forum to foster a discussion of the DR&R process and alternatives with state and federal agencies, stakeholders, the oil industry, and other interested parties.

Introduction

PURPOSE

This report was prepared for the Cook Inlet Regional Citizens Advisory Council (CIRCAC) to provide information on the status of plans and requirements for the dismantling and removal of offshore oil and gas platforms in Cook Inlet and the restoration of the environment after removal is complete (DR&R). The purpose of the report is to aid CIRCAC in developing a strategy for engaging in the review of DR&R plans for Cook Inlet platforms to ensure that acceptable DR&R requirements for each platform are developed and implemented in a manner that protects the public's interests.

The report focuses on the legal requirements for DR&R under state and federal law; that is, those requirements that must be met before DR&R activities can proceed and before a lease agreement can be terminated. It does not discuss air and water quality permits for the platforms that may have been issued by the Alaska Department of Environmental Conservation, pollution discharge permits issued by the U.S. Environmental Protection Agency or other ongoing environmental permitting or future environmental clean-up requirements.

COOK INLET'S OFFSHORE PLATFORMS

There are sixteen offshore oil and gas platforms in Cook Inlet clustered near the midpoint of the Inlet from offshore of the village of Tyonek to West Forelands. The map in Figure 1 shows the location of each of these platforms. Table 1 shows the installation date, location, owner, and operator of each platform. Table 2 shows the production shares and unit operator for each of the Cook Inlet offshore production units in which platforms are located.

The northernmost platform is the Tyonek platform, due east of the village of Tyonek. It taps into the North Cook Inlet gas field and is connected to shore-based gas processing facilities and the Nikiski tanker terminal via subsea pipeline.

The Bruce, Anna, and Granite Point platforms are just off Granite Point and the Spark, Spurr, and Monopod platforms are near the north end of Trading Bay. These six platforms produce crude oil that is delivered via subsea and onshore oil pipelines to the Drift River Terminal. The natural gas from these platforms feeds into subsea pipelines leading to Nikiski and to the Beluga, Pretty Creek, and Lewis River gas fields, then on to Anchorage via onshore pipeline.

The King Salmon, Grayling, Steelhead and Dolly Varden platforms are in Trading Bay. Oil and gas from these platforms is delivered via a system of subsea and onshore pipelines to the Drift River Terminal, Nikiski, and Anchorage. Due east of the Trading Bay platforms are Baker, XTO A, XTO C, and Dillon, which drain the Middle Ground Shoal oil and gas field. The oil and gas they produce is delivered to Nikiski and onshore processing facilities via subsea pipelines. The newest platform, Osprey, taps into a small oil field off West Forelands.

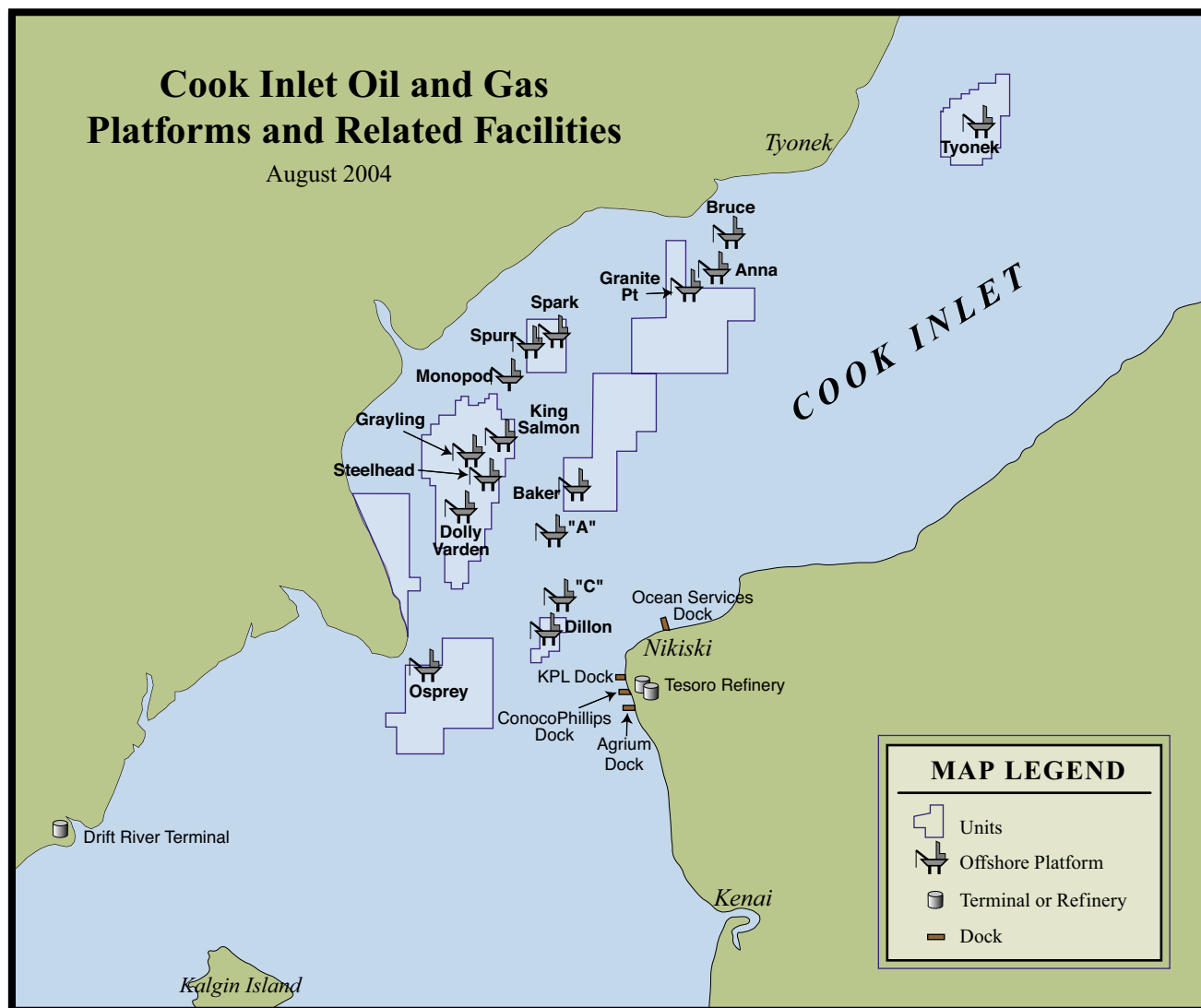


Figure 1. Cook Inlet oil and gas platforms and related facilities.

PLATFORM	DATE INSTALLED	LEASE NUMBER	UNIT LOCATION	ORIGINAL OPERATOR	CURRENT OWNER(S)	CURRENT OPERATOR
XTO A	1964	18754	Outside Unit Boundary	Shell	XTO Energy	XTO Energy
Baker (Operations suspended*)	1965	17595	North Middle Ground Shoal	Amoco	Unocal Forest Oil	Unocal
Granite Point	1966	18761	South Granite Point	Mobil	Exxon Mobil Unocal	Unocal
Monopod	1966	18731	Outside Unit Boundary	Unocal	Marathon Unocal	Unocal
Anna	1966	18742	Outside Unit Boundary	Amoco	Unocal	Unocal
Bruce	1966	18742	Outside Unit Boundary	Amoco	Unocal	Unocal
Dillon (Operations suspended)	1966	18746	South Middle Ground Shoal	Amoco	Unocal	Unocal
XTO C	1967	18756	Outside Unit Boundary	Shell	XTO Energy	XTO Energy
King Salmon	1967	18772	Trading Bay	Arco	Marathon Unocal	Unocal
Grayling	1967	17594	Trading Bay	Unocal	Marathon Unocal	Unocal
Dolly Varden	1967	18729	Trading Bay	Unocal	Marathon Unocal	Unocal
Tyonek	1968	17589	North Cook Inlet	Phillips Petroleum	Conoco Phillips	Conoco Phillips
Spurr (Operations suspended)	1968	17597	North Trading Bay	Texaco	Marathon Unocal	Marathon
Spark (Operations suspended)	1968	17597	North Trading Bay	Texaco	Marathon Unocal	Marathon
Steelhead	1986	18730	Trading Bay	Arco	Marathon Unocal	Unocal
Osprey	2000	381203	Redoubt	Forest Oil	Forest Oil	Forest Oil

* All wells on Spurr and Spark have been plugged except for a gas well and a disposal well. The wells on Dillon and Baker are inactive—save for gas and disposal wells—but have not been plugged.

Table 1. Platform installation date, location, owners and operator.

UNIT	PLATFORMS WITHIN UNIT	UNIT PRODUCTION SHARE	UNIT OPERATOR
North Cook Inlet	Tyonek	Conoco Phillips 100%	Conoco Phillips
South Granite Point	Granite Point	Exxon Mobil 75% Unocal 25%	Unocal
North Trading Bay	Spurr, Spark (Operations suspended)	Marathon 75% Unocal 25%	Marathon
Trading Bay	King Salmon, Steelhead, Dolly Varden, Grayling	Oil Production: Unocal 53.2% Forest Oil 46.8% Gas Production: Unocal 50% Marathon 50%	Unocal
North Middle Ground Shoal	Baker (Operations suspended)	Unocal 75% Forest Oil 25%	Unocal
South Middle Ground Shoal	Dillon (Operations suspended)	Unocal 100%	Unocal
Redoubt	Osprey	Forest Oil 100%	Forest Oil

XTO A, XTO C, Anna, Bruce and Monopod are located outside unit boundaries.

Table 2. Unit platforms, production shares and operators.

Fourteen of the sixteen platforms were installed between 1964 and 1968. The Steelhead platform was installed in 1986 and the Osprey platform in 2000. All but five of the platforms are situated within the boundaries of established oil and gas production units. Oil and gas operations on four of the platforms—Spurr, Spark, Dillon, and Baker—have been suspended. Operations at Spurr and Spark were suspended in 1992. All wells on these two platforms have been plugged except for a gas well and a disposal well. Operations at Dillon and Baker were suspended in 2003. (See Appendix 3.) The wells on these platforms are inactive—save for gas and disposal wells—but have not been plugged.

The four inactive platforms are presently in “lighthouse mode.”¹ Cathodic protection programs to prevent corrosion are still in place for all four platforms and periodic inspections, including inspection of wells by AOGCC, continue. Otherwise, platform facilities have been decommissioned, except for the markers and navigational lights required by the U.S. Coast Guard, and the active gas and disposal wells are managed remotely. The leases on which they’re located are still active; that is, the Alaska Department of Natural Resources (ADNR) has not terminated them, nor has ADNR required the development of DR&R plans.

Legal and Regulatory Requirements for DR&R in Alaska

The DR&R process is governed by a number of state and federal regulatory requirements as well as provisions contained in the production unit and lease agreements. The DR&R process for Cook Inlet platforms must address these requirements in order to move forward.

FEDERAL LAWS GOVERNING DR&R FOR COOK INLET PLATFORMS

In the U.S. Outer Continental Shelf (OCS), federal regulations² require that all wellheads, casings, and pilings be severed to a depth of 15 feet below the mud line; that is, below the ocean floor. After work is complete, the platform operator must then verify that the area is clear of any obstructions by either trawling the area twice or conducting a sonar survey.

Because all of the Cook Inlet platforms are located in state waters, federal authority to require DR&R is restricted to the general terms of the permits issued by the U.S. Army Corps of Engineers (USACE) under Section 10 of the 1899 Rivers and Harbors Act.³ Depending on the date of issue, the Section 10 permits for Cook Inlet platforms may require either the removal of the platforms once they’re no longer being used for the purpose for which they were constructed or restoration of the area to a condition satisfactory to the District Engineer in charge of Alaska operations. Under Section 10, the USACE has a broad level of discretion in setting DR&R standards.

¹ Letter to Mark Meyers, Director, Alaska Department of Natural Resources Division of Oil and Gas from John P. Zager, Unocal, November 25, 2003 regarding South Middle Ground Shoal Unit 2004 Plan of Development and Operations.

² 30 CFR 250, 256.

³ 33 USC 403.

STATE LAWS AND REGULATIONS GOVERNING DR&R IN COOK INLET

Two state agencies have primary authority for setting DR&R requirements for holders of state oil and gas leases in Alaska: the Alaska Oil and Gas Conservation Commission (AOGCC) and the Alaska Department of Natural Resources (ADNR). The primary responsibilities of AOGCC are to maintain the subsurface integrity of oil fields within the state's boundaries during exploration and production, and to ensure that all wells are properly plugged and abandoned after production ends. AOGCC is responsible for permitting oil and gas wells throughout Alaska regardless of land ownership. The agency's regulations regarding plugging and abandonment of oil and gas wells are quite specific,⁴ and are designed to ensure that all wells on the lease tract are plugged and abandoned to the standards set in the regulations prior to termination of the lease.⁵

The regulations also require that all well casings extending down from an offshore platform must be removed to one foot below the mud line prior to lease termination. But AOGCC can waive this requirement if ADNR approves leaving the platform in place.⁶

ADNR is responsible for maintaining the state's oil and gas leasing program and for monitoring oil industry activities on leased lands. There is no state statute or body of regulations mandating DR&R of oil development facilities on state lands. The only provisions for DR&R for oil and gas leases are contained in the lease agreements which the state enters into with the leaseholder at the time the lease is purchased. These provisions are very general, granting broad discretionary authority to ADNR's Commissioner to set standards and practices for DR&R.⁷

DR&R PROVISIONS IN LEASE AND UNIT AGREEMENTS FOR COOK INLET

Provisions for DR&R of Cook Inlet's offshore oil platforms are contained in the lease agreements for each of the leases on which the platforms are located. For those platforms also located within the boundaries of established oil and gas production units, there may be DR&R requirements in the unit agreements as well. Where provisions of the lease agreements and unit agreements overlap, the unit agreement takes precedence. Most importantly, the unit agreement shifts the primary burden for DR&R to all companies who have a working interest in the unit (see Table 2, page 10).

LEASE AGREEMENTS

Upon issuance of a state lease for oil and gas development, the state enters into an agreement with the lease holder that specifies how the lease must be developed and what level of royalties will be paid to the state for the oil and gas

⁴ 20 AAC 25.105-172.

⁵ AS 31.05.030.

⁶ 20 AAC 25.172.

⁷ AS 38.05.090. Removal or Reversion of Improvements Upon Termination of Leases.

that is produced from the lease tract. Once production ends, there are DR&R provisions in the lease agreements for removal of all structures, property and improvements made to the lease tract.

Fifteen of the sixteen platforms in Cook Inlet are located on tracts for which the lease was issued in 1962, while one platform is located on a tract with a 1994 lease.

The DR&R requirements for leases issued in 1962,⁸ which apply to all but the Osprey Platform,⁹ describe the lease termination process as follows (see also Appendix 1):

36. RIGHTS ON TERMINATION. Upon the expiration or earlier termination of this leases as to all or any portion of said lands, Lessee shall have the privilege at any time within a period of six months thereafter, or such extension thereof as may be granted by Lessor [the state], of removing from said land or portion thereof all machinery, equipment, tools, and materials other than improvements needed for producing wells. Any materials, tools, appliances, machinery, structures, and equipment subject to removal as above provided which are allowed to remain on said land or portion thereof shall become the property of Lessor upon expiration of such period; *provided, that Lessee shall remove any and all of such properties when so directed by Lessor. Subject to the foregoing, Lessee shall deliver up said lands or such portion or portions thereof in good order and condition.* [Emphasis added.]

The lease agreement for the 1994 lease,¹⁰ which applies to the tract on which the Osprey platform is located, states:

21. RIGHTS UPON TERMINATION. Upon expiration or earlier termination of this lease as to all or any portions of the leased area, the lessee will be directed in writing by the state and will have the right at any time within a period of one year after the termination, or any extension of that period as may be granted by the state, to remove from the leased area or portion of the leased area all machinery, equipment, tools, and materials. Upon expiration of that period or extension of that period and at the option of the state, any machinery, equipment, tools, and materials that the lessee has not removed from the leased area or portion of the leased area become the property of the state or may be removed by the state at the lessee's expense. *At the option of the state, all improvements such as roads, pads, and wells must either be abandoned and the sites rehabilitated by the lessee to the satisfaction of the state, or be left intact and the lessee absolved of all further responsibility as to their maintenance, repair, and*

⁸ State of Alaska Department of Natural Resources Division of Lands. Competitive Oil and Gas Lease, Form No. DL-1 (revised April 1961.)

⁹ XTO A, Baker, Granite Point, Monopod, Anna, Bruce, Dillon, XTO C, King Salmon, Grayling, Dolly Varden, Tyonek, Spurr, Spark, and Steelhead.

¹⁰ State of Alaska Department of Natural Resources Competitive Oil and Gas Lease, Form #DOG 9208.

eventual abandonment and rehabilitation. [Emphasis added.] Subject to the above conditions, the lessee shall deliver up the leased area or those portions of the leased area in good condition.

In addition to these provisions, both the 1962 and 1994 lease agreements contain paragraphs regarding "Diligence: Prevention of Waste" that require the leaseholder to plug all wells before abandonment and to abide by applicable regulations of the AOGCC.

UNIT AGREEMENTS

There are no provisions for DR&R in the unit agreements for the North Trading Bay Unit (in which the Spurr and Spark platforms are located), the South Middle Ground Shoals Unit (in which the Dillon platform is located) and the Trading Bay Unit (where King Salmon, Grayling, Dolly Varden and Steelhead are located.) Instead, the unit agreements indicate that the DR&R provisions for the leases within these units remain in effect.

There are DR&R requirements in the unit agreements for North Middle Ground Shoals Unit (where Baker is located), South Granite Point Unit (in which Granite Point is located) and Redoubt Unit (where Osprey is located). The agreements indicate that these provisions take precedence over those of the lease agreements for the lease tracts contained within these units. The unit agreement requirements are as general as those in state statute and in the lease agreements. They include the following information regarding termination of operations.

ARTICLE 3. Creation and Effect of Unit.

Section 3.5. The provisions of the various leases, agreements, or other instruments pertaining to the respective leases or production from those leases, are amended only to the extent necessary to make them confirm to the written provisions of this Agreement, but otherwise remain in full force and effect.

ARTICLE 13. Effect of Contraction and Termination.

Section 13.3. The Unit Operator and Working Interest Owners shall remove all machinery, equipment, tools, and materials from the Unit Area within one year after this Agreement terminates. After one year, the state will in its sole discretion, either: (1) keep any machinery, equipment, tools and materials that the Unit Operator and Working Interest Owners have not removed as the state's property, or (2) remove them at the Unit Operator's and Working Interest Owners' expense. *The state will, in its sole discretion, require that the Unit Operator and Working Interest Owners either: (1) abandon some or all of the improvements, such as roads, pads, and wells, and rehabilitate sites to the satisfaction of the state, or (2) leave intact some or all of the improvements and sites, and be absolved of all further responsibility for their maintenance, repair, and eventual abandonment and rehabilitation.* [The Redoubt Unit Agreement contains an additional

sentence here: The Commissioner may extend the period for salvage and removal of Unit Equipment and Rehabilitation of State Leases.] *Subject to the above conditions, the Unit Operator and Working Interest Owners shall deliver up the Unit Area in good condition.* [Emphasis added.]

APPLICATION OF DR&R REQUIREMENTS UPON LEASE TERMINATION

In Alaska, ADNRC has the authority to enter into additional agreements with lease holders for DR&R. When XTO Energy¹¹ purchased XTO A and XTO C platforms from Shell in 1998, the state entered into an abandonment funding agreement with XTO Energy. With regard to DR&R requirements, the agreement indicates that XTO must carry out DR&R under the terms of the lease agreements for both platforms and further specifies that, "ADNRC has the discretion to determine the nature and scope of [XTO's] restoration obligation."¹² (See Appendix 2.)

It is evident from a review of state statute, lease agreements, unit agreements, and other financial agreements governing DR&R for Cook Inlet platforms that, other than the well capping and abandonment requirements enforced by AOGCC, ADNRC has broad discretionary authority to set DR&R standards for Cook Inlet offshore platforms. These could extend from requiring full removal to allowing the platforms to be abandoned in place. State officials have indicated that they feel this level of flexibility allows them to consider new processes and technologies for DR&R when they develop requirements at the point of termination of a lease agreement.¹³

The DR&R Process and Alternatives

DR&R IN OTHER REGIONS

Because there have been no platforms dismantled and removed in Cook Inlet since the installation of the first platform forty years ago, there is no record of experience on which to draw to set standards for platform DR&R in Cook Inlet. Oil and gas development offshore of Alaska's North Slope is based on gravel islands in the Beaufort Sea rather than platforms, and is therefore not analogous to Cook Inlet.

Of the approximately 4,000 offshore oil and gas platforms located in U.S. waters, about 100 platforms are dismantled each year, primarily in the Gulf of Mexico (GOM). In the GOM, platform dismantlement and removal has typically been accomplished by first plugging and abandoning all wells, draining all storage tanks and then removing all buildings and structures from the platform decks.

¹¹ At the time, XTO Energy was Cross Timbers Oil Company.

¹² Abandonment Funding Agreement, dated December 31, 1998, Between Cross Timbers Oil Company and the State of Alaska Department of Natural Resources.

¹³ U.S. Government Accounting Office. 2002. Alaska's North Slope: Requirements for Restoring Lands After Oil Production Ceases. Report to Congressional Requesters. GAO-02-357.

The platform is then dismantled, severed from the legs, removed and taken to shore for salvage. All well casings are detached and pulled from the platform legs, which are hollow. The legs are then severed from the sea floor, removed and taken to shore for salvage. For nearly 70% of the platforms removed to date, explosives were used to sever the legs from the ocean floor. In 1988, the National Marine Fisheries Service (NMFS) issued a biological opinion with specific standards for the use of explosives for platform DR&R and established a monitoring and observer program for platform dismantling. As a result, individual incidental take permits issued under either the Marine Mammals Protection Act (MMPA) or the Endangered Species Act (ESA) are not required for platform removal in the GOM.

THE DR&R PROCESS FOR COOK INLET PLATFORMS

Cook Inlet platforms are located in one of the harshest ocean environments in the world due to the combination of ice, tides, current, earthquake frequency and extreme cold temperatures that exist in the Inlet.¹⁴ As a result, platform structure in Cook Inlet differs significantly from that of platforms in the Gulf of Mexico or off the coast of California.¹⁵ Even North Sea platform DR&R doesn't offer significant opportunity for comparison because of the differences in ocean depth and sea conditions.

In Cook Inlet, the platforms are all located in water depths ranging from about 60 to 180 feet. Unlike the hollow legs of platforms in other U.S. waters, the legs of Cook Inlet platforms are comprised of two sleeves; an inner sleeve usually about 7 feet in diameter and an outer sleeve about 14-17 feet in diameter. The well casings are inserted in the space between these sleeves and anchored with concrete, which sometimes extends up to the level of the first horizontal member.¹⁶ When coupled with extreme tidal currents and fluctuations, extreme water opacity and limited periods of ice-free conditions, these structural differences will make full removal of Cook Inlet platforms more difficult than platform removals in other areas of the country.

If full removal is required in Cook Inlet, explosives may be needed to sever platform legs from the ocean floor. This has the potential for significant impacts to local fisheries. In the GOM and California, the use of explosives has raised issues of fish kills and impacts to marine mammals.¹⁷ If explosives were proposed for removal of a Cook Inlet platform, this would likely require an incidental take permit from NMFS to address potential impacts to marine fish and mammals (particularly in light of the fact that the Cook Inlet beluga whale has been listed as depleted under the provisions of the MMPA.)

¹⁴ Visser, Robert C. 1992. A Retrospective of Platform Development in Cook Inlet, Alaska. *Journal of Petroleum Engineering*, February 1992, p. 146.

¹⁵ Pers. comm. w/ Tom Maunder, Petroleum Engineer, Alaska Oil and Gas Conservation Commission. August 5, 2004.

¹⁶ Ibid.

¹⁷ National Research Council Commission on Engineering and Technical Systems. 1996. *An Assessment of Techniques for Removing Offshore Structures*. National Academies Press. Washington, DC.

Depending on what DR&R requirements are set for Cook Inlet platforms, the process will begin with the platform operator submitting a DR&R plan to ADNR's Division of Oil and Gas (DO&G) as part of an annual lease or unit plan of development and operations (see Appendix 3). The DR&R plan would then need to be reviewed by ADNR's Division of Lands and Offices of Habitat Management and Permitting and Project Management and Permitting/Alaska Coastal Management Program (ACMP) before being sent for approval to the Commissioner's office.

Before dismantling activities could begin, the platform operator must seek approval to plug and abandon all wells on the platform from AOGCC. AOGCC must then certify that well plugging and abandonment has been done to state standards.

The platform operator would also have to submit a request for revision of the platform's Section 10 permit to the USACE and include in its request the proposed DR&R plan. It's possible that a new Section 10 permit would be required depending on the extent of the DR&R activities proposed. The USACE would consult with the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (USFWS) and NMFS in its review of the DR&R plan.

OPPORTUNITIES FOR PUBLIC REVIEW OF THE DR&R PROCESS

Opportunities for public review of proposed DR&R activities will vary. State law does not require DO&G to seek public comment on annual lease or unit plans of development and operations before approving them, although DO&G staff have the discretion to do so and have indicated they likely would if a proposed plan of development and operations included a plan for platform DR&R.¹⁸ Once DO&G approved a plan and a timeline for platform DR&R, the plan would then be submitted for a multi-agency review under the provisions of the Alaska Coastal Management Program (ACMP). The ACMP review process normally includes a 30-60 day public comment period.

The USACE is also not required to provide opportunity for public review of proposed revisions to a Section 10 permit or even the issuance of a new Section 10 permit before approving it. The possible issuance of an incidental take permit by NMFS would require public review and comment.

ALTERNATIVES TO DR&R

Alternatives to full removal have been tried in other U.S. waters. The most notable of these are the "rigs to reefs" programs that exist in the GOM and California in both state waters and the OCS. In these programs, the platform is either abandoned in place or moved to another location and sunk, or the platform structure is removed and the legs are then severed at a safe depth and left

¹⁸ Pers. comm. w/ Bill Van Dyke, Director, Division of Oil and Gas Permitting and Unit Administration Section. May 26, 2004.

standing or severed at the ocean floor and toppled. Before the platform operator can abandon the platform, the state agency responsible for lease management must first assume all liability for the abandoned structure once the lease is terminated.

The underwater surfaces of the abandoned structures provide substrate for corals, barnacles and other organisms to attach and, in turn, creates enhanced fish habitat. In the GOM, there has been a strong correlation between the growing number of offshore platforms in the region and the increase in fish catches in the region. But this may have more to do with the redistribution of fish because of the reef effects of the platform and the redistribution of fishing effort, both sport and commercial, to the vicinity of the platforms than with actual increases in fish populations.¹⁹

In the GOM, both sport and commercial fishers, and others interested in maintaining and expanding marine fisheries habitat, generally support leaving platforms in place as part of rigs to reefs programs. But some states have indicated that the liabilities and costs of maintenance outweigh the benefits, and they are hesitant to assume the potentially unlimited liability of leaving platforms in place or even accept the liability of partial removal of platform structures.²⁰ As well, in some areas of the country, partially removed and submerged platforms have created serious conflicts for fisheries; particularly for trawlers, crabbers, shrimpers and longliners whose gear may become entangled in abandoned structures.²¹

Other uses of abandoned offshore platforms have been discussed in other areas of the world for the past decade.²² Among the options put forward are marine research stations, bases for marine search and rescue operations, and centers for waste processing and disposal. Among those ideas currently receiving attention in the GOM is conversion to power generating stations using wind energy. A proposal was presented to the Louisiana Public Services Commission to place 230-foot tall wind turbines on the top of abandoned oil platforms and 22 more turbines on top of specially made smaller platforms off the Louisiana coast.²³ The proposal is still under consideration by the state, the U.S. Minerals Management Service and the U.S. Army Corps of Engineers. No wind farms have yet been built offshore in U.S. waters.

¹⁹ Patin, Stanislaw, PhD. Elena Cascio PhD., Translator. *Environmental Impact of the Offshore Oil and Gas Industry*, EcoMonitor Publishing, (December 1999). ISBN 0-9671836-0-X.

²⁰ National Research Council Commission on Engineering and Technical Systems. 1996. *An Assessment of Techniques for Removing Offshore Structures*. National Academies Press. Washington, DC.

²¹ Patin, Stanislaw, PhD. Elena Cascio PhD., Translator. *Environmental Impact of the Offshore Oil and Gas Industry*, EcoMonitor Publishing, (December 1999). ISBN 0-9671836-0-X.

²² Patin, Stanislaw, PhD. Elena Cascio PhD., Translator. *Environmental Impact of the Offshore Oil and Gas Industry*, EcoMonitor Publishing, (December 1999). ISBN 0-9671836-0-X.

²³ LeJuene, Henri. Capturing offshore winds. *The Daily Iberian*. June 6, 2004.

DR&R Costs and Funding

STATE BONDING REQUIREMENTS

The cost of DR&R for any of the Cook Inlet platforms is hard to estimate without knowing what standards for DR&R will be set by ADNR. But it is safe to assume that current state bonding requirements do not offer enough of a surety to prevent companies from defaulting on their obligations for platform DR&R, particularly smaller companies with limited assets. Each leaseholder is required under state law to post a \$10,000 bond before undertaking any development on a leased tract and a \$500,000 statewide bond to cover operations on all state oil leases a company may hold.

The ADNR Commissioner has the discretion to set higher bond requirements and even negotiate financial agreements for DR&R. This was done when XTO Energy purchased Platforms A and C at Middle Ground Shoals from Shell. Under the terms of XTO's abandonment agreement with the state, XTO was required to post a \$3 million bond in addition to a \$500,000 statewide bond and is required to deposit \$31 million to an escrowed fund before 2009. This agreement offers perhaps the best estimate of the cost of platform DR&R, that is, \$15.5 million per platform for plugging and abandoning all wells, removal of all structures and buildings on the platform, and removal of the platform and associated pipelines. The agreement grants ADNR "the discretion to determine the nature and scope of [XTO]'s restoration obligation."²⁴ (See Appendix 2.) A similar bond was required of Forest Oil for its Osprey platform, that is, \$3 million in addition to a \$500,000 statewide bond. The state is still negotiating an abandonment agreement with Forest Oil and, depending on the terms of the final agreement with regard to the amount of funds that must be escrowed for DR&R, the bonding requirement may be reduced.²⁵

INDUSTRY ESTIMATES OF DR&R COSTS

Industry estimates of Cook Inlet platform DR&R costs are considered information internal to each company and are not made public. It would be impossible to determine what these estimates might be from reviewing a company's annual reports to shareholders or financial statements filed with the U.S. Securities and Exchange Commission (SEC) since asset retirement obligations are only reported in aggregate for all company operations. As a note of interest, the annual asset

²⁴Abandonment Funding Agreement, dated December 31, 1998, Between Cross Timbers Oil Company and the State of Alaska Department of Natural Resources.

²⁵ Pers. comm. w/ Bill Van Dyke, Director, Division of Oil and Gas Permitting and Unit Administration Section. August 12, 2004.

retirement obligations contained in the annual reports filed with the SEC²⁶ for the companies operating platforms in Cook Inlet are as follows:

Unocal Corporation	\$844,000,000
XTO Energy	\$93,379,000
Marathon Oil Corporation	\$390,000,000
Forest Oil Corporation	\$23,243,000
ConocoPhillips	\$3,603,000,000

DR&R LIABILITY

It appears that responsibility for platform DR&R on state oil and gas lease tracts ultimately rests with the leaseholder at the time of platform installation, which is the point at which the DR&R obligations were acquired. Any transfer of lease ownership must be approved by the state. The lease agreements specify that, in the event of such a transfer, "Lessee shall remain liable for all obligations accruing under this lease prior to the approval of such transfer."²⁷ This interpretation is one that is shared by industry and state agency staff.²⁸ If, for example, XTO Energy were to default on its DR&R responsibilities despite the abandonment funding agreement, Shell Oil—the original leaseholder—is ultimately liable for completing the required DR&R.²⁹ If the original leaseholder is a company that no longer exists, the liability passes to its successors or assigns, that is, the company that now holds its assets through merger or acquisition. In the case of Arco and Amoco, for example, that company is BP. For Texaco, it's Chevron. For Mobil, it's Exxon Mobil.

²⁶ United States Securities and Exchange Commission Form 10-K, Annual Report Filed Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

²⁷ State of Alaska Department of Natural Resources Competitive Oil and Gas Lease, Form #DL-1 (Revised April, 1961) and Form #DOG 9208.

²⁸ Pers. comm. w/ Jeff Landry, Assistant Attorney General, Department of Law, Oil, Gas and Mining Section, March 21, 2004. Pers. comm. w/ Bill Van Dyke, Director, Division of Oil and Gas Permitting and Unit Administration Section. May 26, 2004. Pers. comm. with Kevin Tabler, Land/Government Affairs, Union Oil Company of California, August 6, 2004.

²⁹ Abandonment Funding Agreement, dated December 31, 1998, Between Cross Timbers Oil Company and the State of Alaska Department of Natural Resources.

Existing Arguments for Removal or Retention of Cook Inlet Platforms

In Cook Inlet, the question of the fate of Cook Inlet's offshore platforms has been discussed for a number of years. For those interested in seeing the platforms removed, a number of arguments have been raised:

- ♦ Removal would eliminate the burden of liability the state would assume under the terms of its agreements with leaseholders if it allowed abandonment of the platforms in place. This liability could be potentially unlimited.
- ♦ Removal will eliminate need for long-term maintenance (including continuation of cathodic protection programs) to prevent deterioration and collapse, in turn eliminating a threat to vessel traffic and navigation.
- ♦ Removal will allow more freedom of movement for vessel traffic in areas around platforms and eliminate hazard to small vessels, including commercial fishing vessels.
- ♦ Removal of associated pipelines and gathering lines will eliminate possible sources of continuing pollution.
- ♦ The aesthetic value of the Inlet will be enhanced by the removal of these industrial structures, an issue of increasing importance as the region's tourism industry continues to expand. Leaving them in place may interfere with the public's use and enjoyment of the area.
- ♦ Depending on the requirements set by the state, even partial removal of platforms or moving to deeper water and sinking could be problematic as it may cause conflicts with commercial fishers whose gear may become entangled in the abandoned structures.

Many of the benefits of retention of Cook Inlet platforms that have been raised were summarized in the 2003 Plan of Operations and Development for the South Middle Ground Shoals Unit submitted by Unocal to ADNR. (See Appendix 3.) These were outlined in the plan as benefits of suspending operations at the Dillon platform:

- ♦ Dillon Platform has been, and will continue to be, used as a navigation aid for marine transport in the Cook Inlet.
- ♦ Dillon Platform, as well as other Platforms in Cook Inlet, acts [sic] as ice breakers for pan ice in the Inlet. Tanker and cargo marine traffic is facilitated and aided by this ice breaking effect.

- ♦ Dillon Platform and its associated facility infrastructure is a valuable part of the overall Cook Inlet oil and gas infrastructure in the Inlet. Just having this significant capital investment available is an enhancement to future state commercial opportunities.
- ♦ Dillon Platform is an integral part of the XTO Platforms A and C operations. XTO's use of Dillon's gas pipeline for fuel gas access and transportation in conjunction with platform utilization connecting Dillon to XTO's A Platform is critical to their ongoing operations. Economic waste will occur if XTO is forced to lay new pipelines or convert some of its existing oil pipelines to accommodate gas transmission.³⁰
- ♦ Leaving Dillon Platform in place until such time as multiple platform removal is warranted, provides opportunity for access to future operators or owners to utilize the Platform and associated facilities for future Exploration and Development opportunities. With technological advancements and areas of geologic focus changing from time to time, access and utilization of this significant capital investment may be the difference between future evaluators of the state's oil and gas natural resources having an economic project or not.
- ♦ Unocal continues to research possible Dillon platform utilization opportunities. One possible idea discussed with the United States Coast Guard was to convert the Platform into a Coast Guard research facility and avail themselves of the helipad as a base for rescue operations.
- ♦ Dillon Platform could be used by the U.S. Military as a SDI (Strategic Defense Initiative) radar tracking station similar to the semi-submersible that is being converted for the same use in the Prince William Sound near Valdez. In addition, the facility could be used for military training.

³⁰ A project is currently underway to separate XTO's pipeline infrastructure from the Dillon Platform, so this argument will be mute by the end of 2005.

Conclusions and Recommendations

Under current law and legal agreements, regulatory authorities have the discretion to set standards for a range of DR&R options for Cook Inlet oil and gas platforms or to consider alternatives to DR&R. It is difficult to say whether full or partial removal or any one of the proposed alternatives is in the public's best interest until there is a clearer understanding of the consequences of removal and the viability of alternatives.

The following recommendations are offered for CIRCAC's consideration to help address current uncertainties regarding DR&R for Cook Inlet offshore platforms and to see that agencies responsible for DR&R address the public's concerns:

1. Contract with an independent engineering firm to evaluate the feasibility and consequences of options for platform dismantlement in Cook Inlet. The range of options to be evaluated should extend from full removal to abandoning the platform structure in place.
2. Meet with representatives of Alaska Division of Oil and Gas and the U.S. Army Corps of Engineers to press for full public review in their respective regulatory processes for platform DR&R.
3. If not doing so already, routinely review annual unit and lease plans of operations and development for the seven units and five leases outside of unit boundaries on which platforms are situated.
4. Sponsor a public forum on Cook Inlet platform DR&R. Invite representatives of the independent engineering firm contracted to do the Cook Inlet DR&R feasibility study outlined in the first recommendation above; staff from MMS who oversee platform dismantlement in federal waters; Rigs to Reefs program representatives from California and the Gulf Coast states; staff from the NMFS platform dismantlement observer program in the Gulf of Mexico; representatives of Grand Vent Wind Energy Systems Technologies; agency officials in from ADNR, ADEC and the Alaska offices of the USACE, the U.S. Coast Guard, EPA and NMFS; and representatives of Unocal, XTO, Phillips, Marathon and Forest Oil companies. The forum should be organized to provide ample opportunity for public involvement, including opportunities to ask questions of presenters and share information. Funding for such a forum could be sought from state and federal grant programs as well as private foundations and industry.