



IN REPLY REFER TO:

## United States Department of the Interior

### KENAI NATIONAL WILDLIFE REFUGE

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## COMPATIBILITY DETERMINATION

*The National Wildlife Refuge System Administration Act of 1966, as amended (16 U.S.C. 668dd-668ee) states that "The Secretary is authorized, under regulations as [s]he may prescribe, to – (A) permit the use of any area within the [National Wildlife Refuge] System for any purpose, including but not limited to hunting, fishing, public recreation and accommodations, and access wherever [s]he determines that such uses are compatible' and that "... the Secretary shall not initiate or permit a new use of a refuge or expand, renew, or extend an existing use of a refuge, unless the Secretary has determined that the use is a compatible use and that the use is not inconsistent with public safety." A compatible use is defined as "A proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the national wildlife refuge." The compatibility determination is to be a written determination signed and dated by the Refuge Manager and Regional Chief of the National Wildlife Refuge System, signifying that a proposed or existing use of a national wildlife refuge is a compatible use or is not a compatible use.*

*Applicable compatibility regulations in 50 CFR Parts 25, 26, and 29 were published in the Federal Register October 18, 2000 (Vol. 65, No. 202, pp 62458 – 62483).*

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**Use:** Swanson River Field Natural Gas Storage

**Refuge:** Kenai National Wildlife Refuge

**Establishing and Acquisition Authorities:** The Refuge was first established as the Kenai National Moose Range by Executive Order 8979 on December 16, 1941. The boundaries were modified, purposes expanded, and name changed to Kenai National Wildlife Refuge under the provisions of the Alaska National Interest Lands

Conservation Act (ANILCA) on December 2, 1980 (Public Law 96-487 Stat. 2371).

**Refuge Purposes:** The Executive Order purpose was primarily to "... protect the natural breeding and feeding range of the giant Kenai moose on the Kenai Peninsula, Alaska...". ANILCA purposes for the Refuge include: "(i) to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to moose, bear, mountain goats, Dall sheep, wolves and other furbearers, salmonids and other fish, waterfowl and other migratory and nonmigratory birds; (ii) to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats; (iii) to ensure to the maximum extent practicable and in a manner consistent with the purposes set forth in paragraph (i), water quality and necessary water quantity with the refuge; (iv) to provide in a manner consistent with subparagraphs (i) and (ii), opportunities for scientific research, interpretation, environmental education, and land management training; and (v) to provide, in a manner compatible with these purposes, opportunities for fish and wildlife oriented recreation." The Wilderness Act of 1964 (Public Law 88-577) purposes are to secure an enduring resource of wilderness, to protect and preserve the wilderness character of areas within the National Wilderness Preservation System, and to administer this wilderness system for the use and enjoyment of the

American people in a way that will leave them unimpaired for future use and enjoyment as wilderness.

Policy (FWS 603 2.8) directs that pre-ANILCA purposes remain in force and effect, except to the extent that they may be inconsistent with ANILCA or the Alaska Native Claims Settlement Act, and that such purposes only apply to those areas of the Refuge in existence prior to ANILCA. The Executive Order purpose to protect Kenai moose, however, is treated as complimentary to the broader ANILCA purpose of conserving fish and wildlife populations; therefore, no special attention is given the Executive Order purpose in this compatibility review process.

Sec. 4(a) of the Wilderness Act provides that the purposes of the Act are to be within and supplemental to the purposes for which National Wildlife Refuges are established and administered. These purposes are applied to the approximately 1.3 million acres of Congressionally designated wilderness within the Refuge. They are also applied to the remaining approximately 700,000 acres of Refuge lands (that are not designated as wilderness) in any way that the proposed use might affect the designated wilderness areas.

**National Wildlife Refuge System Mission:** The National Wildlife Refuge System Mission is “To administer a national network of lands and waters for the conservation,

management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**Description of Use:** Union Oil Company of California (Unocal) has applied to the Bureau of Land Management (BLM) for the necessary permits to develop portions of the Swanson River Field to facilitate expanded natural gas storage. Unocal has further requested concurrence from the U.S. Fish and Wildlife Service, Kenai National Wildlife Refuge, as the surface owner of the Swanson River Field. This compatibility determination, and accompanying environmental assessment, constitutes the evaluation process for which the Refuge may provide concurrence.

The Swanson River Field was the first substantial commercial oil discovery in Alaska, coming on line in 1957. The original lease was granted under the provisions of the Minerals Leasing Act of 1920 and was held by Chevron USA from 1957 until 1986, then by Atlantic Richfield Corporation Alaska, Inc. from 1986 to 1992, and finally by Unocal from 1992 to present. The Field occupies approximately 7,880 acres of the Refuge. Sub-surface or "down hole" operations within the Field are administered by the BLM under the provisions of the Minerals Leasing Act; surface use and occupancy are coordinated with the Refuge via the provisions of a Lease Agreement and through the review and approval of annual plans of

development and operations. Activities within the lease area for exploration and development of oil and natural gas are legal entitlements held by Unocal and are not subject to a compatibility review.

Numerous support facilities have been built within the Field including approximately 43 miles of road, 60 well pads, 62 acres of building and storage areas, five residences, office and maintenance shop buildings, a large compressor plant for gas injection, an oil pumping station, 12 acres of gravel and sand pits, a solid waste disposal site, a pipeline complex from each well to seven tank settings, seven flaring stacks, an eight inch crude and 16 inch gas pipeline across the Refuge from the Field to the town of Nikiski (approximately 20 miles to the west), two steel girder bridges over the Swanson River, two power lines crossing the River, and a power line complex through the Field in addition to the main feeder line coming from Nikiski within the underground pipeline corridor.

A total of 140 wells have been drilled in the Swanson River Field. In the early 1960s, the 16 inch gas pipeline from Nikiski to the Field and the compression plant were constructed for the purpose of importing natural gas and injecting it in the Field to aid in the production of oil through reservoir pressure maintenance. Over the next three decades, 331 billion cubic feet of gas were imported and injected in the Field. In the late 1960s, oil production

peaked at approximately 40,000 barrels per day from approximately 60 wells. Currently, the Field production is around 700 barrels of crude oil per day from an average of 20 producing oil wells and approximately 19 million cubic feet of gas per day from an average of 8 producing gas wells. As of January 2005 a cumulative of 228,688,608 barrels of crude oil and 46.9 billion cubic feet of natural gas have been produced from the Field. Twenty-eight wells have been shut in for various reasons and might be used in the future. Sixty-four wells have been permanently plugged. There are nine service wells that are used for injection of water, gas, or waste disposal.

Unocal is now proposing to store natural gas produced within the Field as well as outside the Field to improve gas delivery throughout the South-central Alaska gas use area. As noted above, gas injection in the Field, from both in-field and outside sources, is not a new activity. It has been used as a normal and accepted production procedure to increase recoverability of product when pressures start to decline within the formation. The proposal now, however, is somewhat different in that the gas injection and storage would not be designed for production purposes, but rather for storage and delivery at a later time through existing piping systems. While historical gas injection, as part of normal production operations, was an accepted component of the Field's lease and operator entitlement, gas storage is not a legal entitlement under the oil and gas leases. The Secretary of the Interior, via Minerals Leasing Act

regulations, has the discretion to authorize gas storage, but is not required to do so; therefore, when evaluating the proposal the agencies must consider other statutory requirements, including the compatibility provisions of the National Wildlife Refuge System Administration Act. Unocal proposes to use existing pads, pipeline corridors, and roadways in pursuit of the new gas storage activity.

**Availability of Resources:** Oil and gas activities can significantly detract from a refuge's ability to implement its primary conservation purpose and mission through re-directing biological and management staff time to work on permits, monitoring, law enforcement, remediation actions, and other related activities without compensation to replace the lost capabilities. This certainly has been true at Kenai National Wildlife Refuge where adequate funding to help administer oil and gas industrial activities has never been realized. With the gas storage proposal, however, no additional staff time above normal operations is anticipated beyond the processing of the initial request and preparation of the associated environmental documents.

**Anticipated Impacts of the Use:** Oil and gas industrial activity can have serious long-term impacts to fish and wildlife and habitats. These impacts come in four general areas: 1) conversion of habitat by cutting vegetation, placing structures, and building gravel roads and pads; 2) alteration of refuge management practices, such as prescribed burning (the primary use of the surface estate

can change to support sub-surface development, changing the ability to manage the area for its primary conservation purposes); 3) loss of habitat values or fish or wildlife through oil or other hazardous substance spills; and 4) direct impacts of the operations to wildlife by displacing more sensitive species and causing some individual animal mortalities directly as result of field operations (such as birds hitting towers or small mammals perishing in reserve pits) and indirectly by opening up right-of-ways for additional access by hunters, fishermen, and trappers. A 1999 compatibility determination considered such impacts and found that general oil and gas exploration and development use was not compatible with the purposes of the Refuge. This current compatibility determination acknowledges the 1999 determination and reiterates its general findings of industrial effects on the Refuge; however, it also considers that the current proposal for gas storage should not contribute additional impacts to the Refuge over entitled production operations currently permitted within the area.

**Public Review and Comment:** A public notice (attached) was published in the legal section of the Anchorage Daily News on February 20 and 23, 2005 and in the Kenai Peninsula Clarion on February 23 and 27, 2005. The notice was also included on the U.S. Fish and Wildlife Service web site and an electronic message of its posting was sent to interested parties included on a list server. Additionally, Defenders of Wildlife and Cook Inlet Keeper

(organizations that had contacted the Refuge previously expressing concern with the proposed action) were contacted via phone alerting them to the legal notice and comment period. Seven sets of comments were received.

Four of the sets of comments came from private citizens, and one from the State of Alaska, in favor of the proposed project supporting gas storage as a benefit to people and without any significant environmental concerns.

A lengthy set of comments penned by Cook Inlet Keeper and Defenders of Wildlife, however, expressed strong opposition to the proposal and cited procedural and other legal concerns along with their dissatisfaction in the uncertainties of future environmental impacts of the proposal. They suggest that re-development of currently non-producing well pads is not compatible and that such pads should be reclaimed, and in total, the drilling of each well and laying of each pipeline has unacceptable environmental and management impacts that must be found incompatible with the purposes of the Refuge and the mission of the National Wildlife Refuge System. They also stated that viable alternatives to the proposed project exist to address peak demands in natural gas deliverability to include: 1) Unocal can utilize storage capacity in non-Refuge oil and gas fields in the region which are connected to the South-central Alaska gas pipeline infrastructure; 2) Unocal can construct Liquefied Natural Gas (LNG) “peak shaving” gas storage facilities utilizing LNG from the

Conoco Phillips plant in Nikiski, and/or 3) ENSTAR (the area's primary gas provider, can set up "interruptible supply contracts" with industrial gas users to give them financial incentives not to use gas at times of peak demands. Cook Inlet Keeper and Defenders of Wildlife also requested additional notice and time for public review and comment on the proposed action.

A final set of comments was received from Marathon Oil Company expressing concern with the proposed action in how it might interfere with their development rights in the area. The importation of natural gas from outside the Swanson River Field utilizing the existing gas pipeline from the Kenai-Nikiski Pipeline junction to the Swanson River Field may greatly affect Marathon's ability to produce gas from the East Swanson Satellite Project. They stated that gas production from the Satellite Project would not be possible for a portion of the year when gas was being imported into Swanson River Field and that pipeline capacity would be limited during those times of year when the stored gas would be shipped to market, again reducing the volume of gas that could be produced from the Satellite Project. Marathon expressed concern that either of these situations would be harmful to both Cook Inlet Region, Inc. (CIRI), the gas owner, and themselves, possibly reducing the economic viability of their gas development project. They suggested two possible solutions to the problem: 1) a commercial solution to manage gas flows into and out of

the area through exchanges, or 2) construct a separate and independent pipeline.

Copies of the complete set of public comments received are included as an attachment to the Swanson River Natural Gas Storage Project Environmental Assessment.

**Determination (check one below):**

           Use is Not Compatible

  X   Use is Compatible With Following Stipulations

**Stipulations Necessary to Ensure Compatibility:** The following conditions must be included within BLM's gas storage agreement and any other applicable permits to ensure the Refuge's legal compatibility requirements are met.

- 1) Notwithstanding any other provisions of the Swanson River Field Oil and Gas Leases, the Swanson River or Soldotna Creek Unit Agreements, or any other permit or agreement, the authorization of gas storage within the Swanson River Field can not extend the normally permitted life of the Field. Once oil or gas is no longer produced in paying quantities within the Field, gas

storage within the Field must also be discontinued within 180 days and in a manner that does not impede restoration and remediation actions to be required for the area.

- 2) Infrastructure necessary to facilitate gas storage within the Swanson River Field shall be limited to those areas currently developed for oil or gas production within the Field.
- 3) No new roads, pipeline corridors, or gravel pads shall be constructed to facilitate the proposed gas storage activities.
- 4) Daily operations to facilitate gas storage shall not exceed the level of activity and use necessary to facilitate normal exploration and production activities to the degree that such changes in activities may negatively impact fish or wildlife.
- 5) Any permits or other agreements necessary to authorize gas storage may be amended at any time if necessary to ensure compatibility.
- 6) Current gas storage permits (AA-082931 – Aug. 2, 2001 and AA-084076 – May 3, 2002)

must be rescinded or amended to reflect the preferred alternative for the Swanson River Natural Gas Storage Project Environmental Assessment (March 2005), and the stipulations above necessary to assure compatibility, if the storage wells are to store gas produced from outside the Lease Area.

**Justification:** The proposed gas storage operation within the Swanson River Field of Kenai National Wildlife Refuge will not measurably increase disturbance or negative impacts to fish and wildlife beyond normally permitted oil and gas field exploration and production operations. While such normally permitted activities may have significant long-term impacts on fish and wildlife, their habitats, and the Refuge's ability to manage for its mandated purposes, such operational actions are beyond the purview of a compatibility review. Since the proposed gas storage activities do not add to the permissible impacts, the threshold of compatibility has not been exceeded, and the gas storage use by itself does not materially interfere with or detract from the Refuge's ability to meet its purposes or the National Wildlife Refuge System's Mission.

Additional review was also given for human safety considerations of the proposed action, consistent with requirements of the National Wildlife Refuge System Administration Act. There are no known new safety risks associated with gas storage beyond normal production

operations. Field operators will be operating the same compressors for storage that they are presently operating for oil and gas production, and no new or increased pressure regimes will be introduced. Over time the risk of leaks could even be reduced since stored gas will be dryer and offer less potential for corrosion within the piping and transfer systems. Gas storage wells are equipped with telemetry that allows them to be operated remotely from the Field control room.

Additional background information, project description, and analysis of impacts is included in the Swanson River Natural Gas Storage Project Environmental Assessment.

**Signature (Refuge Manager):** John L. West 3/21/05  
Signature and Date

**Concurrence (Regional Chief):** Tom J. [unclear] 3/31/05  
Signature and Date

**Mandatory 10-year Re-evaluation Date:** 3/31/2015 \*

*\* Relation to Other Compatibility Determinations. A general compatibility determination for gas and oil exploration and extraction in 1994 found the use compatible. This was rescinded on November 28, 1997 recognizing that valid existing rights for mineral development superceded compatibility findings. The rescission established that compatibility determinations for oil and gas activities would be made on a case-by-case basis, where the Service had discretionary permitting authority over the use. A specific compatibility determination for a 3D seismic program was found compatible in February 1998. Concerns developed from the seismic program which in part lead to a comprehensive compatibility determination on oil and gas exploration and development within Kenai NWR, approved January 2, 1998, that found the use not compatible with Refuge purposes, and precluded any additional exploration or development activity outside areas where current entitlements exist. This determination remains in place today except as supplemented by this compatibility determination specific to gas storage within the Swanson River Field. The 1998 comprehensive determination, set to be reviewed after 10 years or sooner, will remain valid indefinitely (consistent with current Service policy applying to uses found to be not compatible) unless specifically replaced with another comprehensive determination, or further supplemented with additional specific determinations..*

LEGAL NOTICE – Published February 20 and 23, 2005 in Anchorage Daily News and  
February 23 and 27, 2005 in the Kenai Peninsula Clarion

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The Kenai National Wildlife Refuge is preparing a compatibility determination for a proposed gas storage operation within the Swanson River Oil and Gas Unit in the Refuge. Union Oil Company of California, the current production lease operator, is making the proposal to inject natural gas produced throughout the area within the Swanson River formation to offset potential gas delivery problems within the Kenai and Southcentral Alaska gas service area. The proposed activity, while a new use of the area, will use existing rights-of-way and facility areas to conduct similar operations that are ongoing in the Unit, and will not extend the industrial use of the area within the Refuge beyond normal oil and gas production authorized under the current lease agreement. Because the proposal entails a new use, the Refuge must complete a compatibility determination to evaluate whether the activity materially interferes with or detracts from the purposes of Kenai National Wildlife Refuge. Such a determination is required under the provisions of the National Wildlife Refuge System Administration Act of 1966, as amended. The Refuge invites interested persons to make comments on the proposal as it affects their interest in the area and how they believe the proposed use may affect Refuge purposes. Kenai National Wildlife Refuge was established by Public Law 96-487 to conserve fish and wildlife populations and habitats in their natural diversity; to fulfill international treaty obligations with respect to fish and wildlife and their habitats; to ensure necessary water quality and quantity within the Refuge; to provide opportunities for research, interpretation, environmental education, and land management training; and to provide opportunities for fish and wildlife-oriented recreation.

Comments on this compatibility review process must be received by March 15, 2005 and may be sent electronically, by mail, or fax to:

[robin\\_west@fws.gov](mailto:robin_west@fws.gov)            --or--

Refuge Manager – Kenai NWR  
P.O. Box 2139,  
Soldotna, AK 99669            --or--

(907) 262-3599 (fax to attn: Refuge Manager)

Results of the compatibility determination and other environmental review associated with this proposal may be received after March 20, 2005 by contacting the Refuge Manager at the above address, or by phoning the Refuge at (907) 262-7021.

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