



612 FW 2, Oil and Gas

FWM#: 107 (new)
Date: Oil and Gas
Series: Natural and Cultural Resources Management
Part 612: Minerals Management
Originating Office: Division of Realty

2.1 Purpose. This chapter provides standard policy guidance and background information on management of oil and gas activities on Service lands.

2.2 Scope. This chapter provides the basic information regarding the statutes, regulations, and procedures relating to all oil and gas activities conducted on Service lands.

2.3 Policy. The policy of the Service is governed by authorities for leasing oil and gas on Federal lands as found in the Mineral Leasing Act for Acquired Lands of August 7, 1947, as amended; for public domain lands, the Mineral Leasing Act of February 25, 1920, as amended; and in Alaska, Section 1008 of the Alaska National Interest Lands Conservation Act (16 U.S.C. 3148). Leasing is at the discretion of the Secretary of the Interior who has delegated the Bureau of Land Management authority to administer the laws, but has by regulation restricted oil and gas leasing on lands of the National Wildlife Refuge System to those involving drainage (43 CFR 3101.5-1 and 3100.2).

In conformance with the policy set forth in 50 CFR 27 (National Wildlife Refuge System), 50 CFR 60.3 (Patuxent Wildlife Research Center), and 50 CFR 70.4 (National Fish Hatcheries), the Service usually recommends against leasing when the Bureau of Land Management asks for comments.

In the case of non-federally owned oil and gas rights, it is the policy of the Service to protect project resources to the maximum extent possible without infringing upon the rights of sub-surface owners.

2.4 Objectives. The objectives of oil and gas management on Service lands are to:

- A. Protect wildlife populations, habitats, and other resources.
- B. Provide for the exercise of non-federal oil and gas rights while protecting Service resources to the maximum extent possible.

2.5 Authorities.

A. National Wildlife Refuge System Administration Act of 1966. This Act established the standard of "compatibility" which requires that uses of National Wildlife Refuge System (NWRS) lands must be determined to be compatible with the purposes for which individual units were established. (See 16 U.S.C. 668dd-668ee, as amended).

B. Alaska National Interest Lands Conservation Act of 1980 (ANILCA). This act includes

provisions for resource assessments and oil and gas leasing on Federal lands in Alaska. (See 16 U.S.C. 3101 et seq.).

(1) **Section 304** sets forth the requirement for completion of Comprehensive Conservation Plans (CCP) to determine compatibility for oil and gas activities.

(2) **Section 1002** authorizes an inventory and assessment of the fish and wildlife resources of the coastal plain of the Arctic National Wildlife Refuge. It authorizes an analysis of the impacts of oil and gas exploration, development, and production, and exploratory activity within the coastal plain in a manner that avoids significant adverse impacts on fish and wildlife and other resources. In addition, this section provides that all public lands within the coastal plain are withdrawn from all forms of entry or appropriation under the mining laws, and from operation of the mineral leasing laws, of the United States.

(3) **Section 1003** prohibits the leasing of oil and gas within the boundaries of the Arctic National Wildlife Refuge until authorized by a further act of Congress.

(4) **Section 1008** authorizes oil and gas leasing on Federal lands in Alaska. Oil and gas activities (including leasing) may be prohibited when so designated by the law or by the Secretary of the Interior. The Secretary may, after having considered the national interest, determine that exploration, development, or production of oil and gas would be incompatible with the purpose for which the unit was established.

(5) **Section 1310** provides for mission purposes of the Department of Defense and other agencies with prior withdrawals on existing or new refuges in Alaska. Except for the mission of the Department of Defense, ANILCA mandated refuge withdrawals primary for all Alaska refuges. No leasing can be allowed unless the Service determines that such leasing would be compatible with the purposes for which the areas were established (43 CFR 3101.5-1 and .5-3).

C. Mineral Leasing Acts.

(1) The Mineral Leasing Act of 1920 (30 U.S.C. 181 et seq.) authorizes the leasing of oil and gas on Service lands withdrawn from the public domain. This Act provides for the disposition of all money received from leasing activity to be paid into the Treasury. Revenues derived from leases outside of Alaska are distributed as follows: 50 percent, State of origin; 40 percent, Reclamation Fund; and 10 percent deposited in the General Fund.

(2) The Mineral Leasing Act for Acquired Lands of 1947 (30 U.S.C. 351 et seq.) authorizes the leasing of oil and gas on Service lands which were acquired by the United States. All funds derived from a leasing activity on acquired lands are paid into the Treasury to be distributed under the provisions of the Refuge Revenue Sharing Act (16 U.S.C. 715s.)

(3) Almost all Service lands are subject to one or both of these mineral leasing laws.

D. Other Laws Relating to Oil and Gas Activity on NWRS Lands.

(1) **National Environmental Policy Act of 1969.** (42 U.S.C. 4321 et seq.) Refer to 550 FW, National Environmental Policy Act.

(2) **Archaeological Resources Protection Act of 1979.** (16 U.S.C. 470aa-470ee). Refer to 614 FW, Cultural Resources Management.

(3) **Migratory Bird Conservation Act of 1929.** (16 U.S.C. 715 et seq). Section 715e provides statutory

authority for regulation of reserved mineral rights on refuge lands (it subordinates oil and gas interests to such rules and regulations as may be prescribed by the Secretary from time to time.)

(4) **Endangered Species Act of 1973.** (16 U.S.C. 1531 et seq.) as amended.

(5) **Wilderness Act of 1964.** (16 U.S.C. 1131 et seq.).

E. Regulations.

(1) **Oil and Gas Leasing on NWRS Lands** (43 CFR 3101.5.) This regulation established guidelines covering oil and gas leasing on NWRS lands.

(2) **Mineral Operations on NWRS Lands** (50 CFR 29.32.) This regulation sets forth general rules governing the exercise of reserved and excepted mineral rights on NWRS lands.

(3) **Geological and Geophysical Exploration of the Coastal Plain of the Arctic National Wildlife Refuge, Alaska** (50 CFR Part 37.) This regulation establishes guidelines governing geological and geophysical exploration for oil and gas within the coastal plain of the Arctic National Wildlife Refuge.

2.6 Definitions.

A. Abandonment. To cease production of oil and gas from a well when it becomes unprofitable, including but not limited to plugging.

B. Development. The construction of all necessary facilities for collection, treatment, storage, and transportation of oil and gas.

C. Drainage. A process in which petroleum resources in a geologic formation in land controlled by, in this case the Service, are depleted by the extraction of petroleum from the same formation by an operation located on adjacent land of another owner.

D. Excepted Rights. Oil and gas rights outstanding in third parties when the United States (Service) acquires title to the lands.

The owner of excepted (outstanding) oil and gas rights has the right to sell, lease, explore for, and remove those minerals subject to the terms of the instrument by which that interest was acquired or reserved and to the State laws governing protection of the surface and the rights of the surface owner. The project leader is responsible for obtaining proof of legal right to enter for oil and gas operations, (deed, lease agreement, title evidence, etc.). Close cooperation with the operator is necessary to minimize disturbance and damage to the project area. Conditions found during inspections should be documented. (See 612 FW 2.9(B).)

E. Exploration. Geological exploration or geophysical exploration or both, and all related activities and logistics associated with either or both.

F. Production. Operation, maintenance, and termination of yielding oil and gas wells and related support facilities.

G. Reserved Rights. A clause in a conveyance, such as a deed, where the seller or grantor retains oil and gas rights on the property sold to the United States on behalf of the Service.

The owner of oil and gas rights reserved, when selling land to the United States, has the right to sell, lease, explore for, and remove those minerals in accordance with the conditions in the deed to the United

States and with pertinent State laws. Close cooperation with the operator is necessary to minimize disturbance and damage to the project area. Conditions found during inspections should be documented. (See 612 FW 2.9(B).)

2.7 Responsibilities.

A. The Director provides national policy guidance on procedures governing all uses of Service lands, including oil and gas activity.

B. Regional Directors.

(1) Review determinations of project leaders in appeals filed in accordance with 50 CFR 25.45 (refuge permits).

(2) Ensure that project leaders adhere to law and policy when making decisions concerning oil and gas activities.

C. Project Leaders.

(1) Administer all oil and gas activities.

(2) Comply with all applicable laws, policies, and guidance when administering oil and gas activities.

(3) Protect Service lands against all unnecessary damage resulting from oil and gas activities.

(4) Where reserved or excepted mineral rights exist, the project leader is responsible for ensuring that his/her actions do not result in an illegal taking of private property.

2.8 Regulations and Policies Relating to Oil and Gas Activities on NWRS Lands.

A. NWRS Lands Outside of Alaska.

(1) Public Domain and Acquired Lands Within a Withdrawal Boundary. Federally-owned oil and gas rights on NWRS lands embraced in the withdrawal of public domain and acquired lands of the United States are not available for leasing (43 CFR 3101.5-1) except where drainage occurs (43 CFR 3100.2). In a decision by the Interior Board of Land Appeals (57 IBLA 319) in 1981, it was determined that the prohibition against oil and gas leasing on "refuge lands" did not include lands acquired from other sources. (On January 31, 1984, Congress was informed that the Department had no plans to pursue leasing of non-Alaska refuge lands.) Some forms of exploration may be permitted on these lands subject to Regional direction. If so permitted, the applicant seeking exploration privileges must justify the need. Reserved or excepted rights may exist within the embrace of this type of withdrawal on acquired sections. When this situation occurs, the persons holding those privileges have the full right to develop their minerals subject to provisions for maximum protection of wildlife and other resources.

(2) Acquired Lands. Acquired lands are open to oil and gas leasing under the Mineral Leasing Act for Acquired Lands of 1947, but units of the National Wildlife Refuge System are closed under Departmental policy. Exploration of federally-owned minerals on these lands is also subject to Regional direction and justification. Reserved and excepted rights on acquired lands are subject to the same provisions as public domain.

(3) Coordination Lands. Coordination lands, which are withdrawn or acquired lands made available to States by cooperative agreement, may be made available for oil and gas leasing under Departmental regulations. Representatives of the Bureau of Land Management (BLM) and the Service, in cooperation

with State game commissions, determine by agreement which coordination lands are not closed to oil and gas leasing (43 CFR 3101.5-2). Regardless of whether an agreement is reached on leasing, some forms of exploration may be permitted. Exploration may occur in accordance with Regional mandates, justification of need by the applicant, and consultation with the applicable State game commission. The exercise of reserved or excepted rights on coordination lands is the same as described in public domain and acquired lands.

B. NWRS Lands in Alaska. Refuges in Alaska, other than the Arctic National Wildlife Refuge, may be open to oil and gas leasing if such use is found to be compatible with the purpose for which they were established. The determination of compatibility is fulfilled through the development of refuge comprehensive conservation plans. Exploration of NWRS lands in Alaska is also permitted when compatible. Reserved and excepted rights occurring on refuge lands are administered in the same manner as those described in NWRS lands outside of Alaska.

C. Drainage. If drainage of NWRS lands is suspected, the project leader should consult with the Bureau of Land Management (BLM) to determine whether drainage is actually occurring. If drainage from oil and gas wells drilled on adjacent lands is confirmed, those affected NWRS lands may be leased under exceptions for drainage described in Departmental regulations and policies (43 CFR 3001.2). In such situations, leases should stipulate "no surface occupancy" (directional drilling) where possible. Alternatively, an authorized officer and the BLM may execute agreements with the mineral right owners of adjacent lands providing compensation for losses incurred in drainage.

2.9 Procedural Requirements for Permitting Oil and Gas Activities.

A. Plan of Operations. Operational plans detailing oil and gas activities will be required for federally-owned rights and requested on reserved and excepted rights. The proposed plan of operations shall include, as appropriate, the following:

- (1) Names, addresses, and phone numbers of owner(s) and operator.
- (2) Proof of mineral rights in the form of a copy of the lease, deed, designation of operator, or assignment of rights.
- (3) Map(s) showing the location of mineral rights.
- (4) Maps showing the location of proposed activity and facilities.
- (5) Estimated timetable for completion and periods of activity.
- (6) Description of potential hazards to persons and/or environment.
- (7) Methods for disposal of all waste including drilling mud.
- (8) Provisions for rehabilitation.
- (9) Any additional information required by the project leader for evaluation of the operation.

The proposed plan of operations is submitted to the project leader for review. Within 30 days of the receipt of the plan, the project leader will notify the operator of approval or rejection. If rejected, he/she will describe the reason for the rejection and recommend any corrective action if applicable.

B. Managing Private Rights. The mineral holder has a responsibility to show reasonable regard for the surface estate as required by State law. Project leaders should adhere to the following guidelines in

managing private mineral activities on Service lands:

- (1) On Service lands where mineral activity is occurring or anticipated, the deed should be examined to determine whether the Service's right to require a Special Use Permit was recognized. If recognized, a permit will be required. Such other rules and regulations as may be specifically set out in a given deed will also be strictly enforced. A permit will not be mandatory in other instances. A deed restriction recognized in 16 U.S.C. 715e that subordinates oil and gas interests as may be prescribed by the Secretary from time to time may require a legal interpretation before a permit can be issued. Unusual deed language or other questions should be referred to Regional Realty staff and the Solicitor for review.
- (2) Where a deed does not recognize permitting authority, the project leader should seek to clarify the Service's power as a holder of the surface estate under State law. State statutes or case law may give powers beyond the usual common law rights of landowners. Moreover, when an intended use would severely impair or destroy the surface interest, and is a use the Service would not have foreseen at the time of purchase, it may be outside the mineral owner's rights under the deed.
- (3) Absent a permitting requirement in the deed, the project leader should pursue voluntary permitting arrangements with the mineral interest owner to specify the reasonable limits of his/her intended operations. The mineral interest owner's inducement for entering into such an agreement is a degree of protection from later being found to have acted unreasonably and to possibly be subjected to civil or criminal liabilities.
- (4) If neither mandatory nor voluntary permitting is possible, the mineral owner should be given written notice of all reasonable alternatives which would minimize impacts of the activity. This will enable the project leader to establish, if necessary, that these less-damaging alternatives were disregarded without due consideration of the Service's interests as surface owner should damage occur.
- (5) When the owner of the mineral interest exceeds the boundaries of what is reasonably necessary to recover his/her minerals, or fails to take reasonable precautions to minimize the surface damage, the Service may take legal action for damages, secure an injunction, and where appropriate, seek criminal penalties.
- (6) The Service's authorities regarding taking of migratory birds or endangered species apply to mineral operators on Service lands. Civil or criminal sanctions should be sought when appropriate.
- (7) The key factors in successfully balancing the development of private mineral interests and the protection of wildlife and other resources on Service lands are early and frequent communication and cooperation between the Service and the mineral rights owner, and a commitment to reasonableness on the part of both parties.
- (8) Current Service policy does not allow the reservation of minerals other than oil and gas. Great care is to be taken to expressly state in the deed what restrictions will be placed on oil and gas reservations. The provisions should be designed to allow the Service the greatest flexibility possible in dealing with future unforeseen conditions.

C. Performance Bond. A performance bond or certificate of insurance will be required for exploration, development, and production activities. If an operator possesses an existing State or national bond of sufficient coverage, a new bond may not be required. The project leader will determine the potential costs involved should it become necessary for the Service to pay for restoration of damaged areas. These costs will be fully covered by the performance bond or certificate of insurance. Documentation of the existence of the required bond or certificate and its coverage of the Service must be submitted to the project leader prior to issuance of a Special Use Permit.

D. Cost Recovery. The Service has no legal authority to charge an owner for the right to develop outstanding or reserved oil and gas rights. However, charges can be assessed if other than reasonable surface damage occurs. Charges assessed for Special Use Permits should reflect administrative costs incurred in processing where federally owned oil and gas are involved (drainage). Additional charges may be assessed to cover costs incurred in monitoring these activities.

2.10 Designing Permit/Lease Stipulations and Background Information. The diverse nature of Service projects does not allow for the complete standardization of stipulations and conditions to be imposed on oil and gas operations. Consequently, oil and gas activities must be managed on an individual unit basis, with protective stipulations developed in a site-specific manner. Generally, stipulations attached to the lease or Special Use Permit should include protection of air quality, soils, water, wildlife, wildlife habitat, and other Service resources.

A. Leasing. Where leasing is permitted on Service lands, it will be coordinated with the BLM. Coordination with the BLM, which is responsible for issuing leases, allows the Service to provide input on necessary stipulations to be included in the lease agreement.

B. Access. Regulations pertaining to access to Service lands are covered in 50 CFR Part 26. A Special Use Permit may be issued to persons requiring access to their oil and gas rights. Access should be restricted to a specified area in accordance with the provisions of the lease.

C. Exploration.

(1) Geological and Geophysical Surveys.

(a) Geological exploration is often utilized where the bedrock geology of an area is well exposed. When this condition occurs, it is often possible to predict oil and gas potential. This type of exploration is usually performed with little surface damage since heavy equipment is not required. Geophysical exploration may be used in conjunction with geological exploration. Three subsurface characteristics are usually measured by geophysical methods: gravitational field, magnetic field, and seismic characteristics.

(b) Gravitational surveys detect variations in gravity caused by differences in the densities of various types of subsurface rock. This is usually done with small, portable instruments called gravimeters. This type of activity normally causes very little surface disturbance.

(c) Magnetic surveys may be used alone or as a supplement to gravitational surveys. Magnetic surveys reveal upwarped geological structures (likely to yield oil and gas) because such structures show strong magnetic responses. This type of activity normally causes little surface disturbance.

(d) Seismic surveys are the most commonly used geophysical methods and are reported to give the most reliable results. Seismic surveys gather subsurface geological information through the generation and receipt of impulses from an artificially generated shock wave.

(e) Seismic methods are usually referred to by the method which is utilized to generate the shock wave. The thumper method involves dropping a steel slab weighing about 2.73 metric tons (three tons) to the ground several times along a predetermined line. The vibroseis method involves vehicles equipped with vibrator pads and recording devices. The pads are lowered to the ground and the vibrators triggered electronically from the recorder truck. The dinoseis method can be used with a variety of vehicles, however. Its shock wave producing device consists of a bell shaped chamber mounted underneath a vehicle. The seismic energy is imparted into the ground through the spark ignition of a propane and oxygen mixture confined in the chamber.

(f) Explosives have been the most widely used way to generate seismic shock waves. Explosives are used in two different methods: subsurface and surface. In the subsurface method, 2.27 - 22.68 kilograms (5-50 pounds) of explosive charge are detonated at the bottom of a 7.62 - 60.96 meters (25-200 foot) drill hole. Drilling of holes may be accomplished by drill rigs mounted on trucks or portable drills depending on access and topography. Up to 1.82 meter (6 foot) craters may result from this method. The surface explosive method involves the placing of explosives directly on the ground.

(g) Vehicular traffic associated with seismic surveys is potentially the most environmentally damaging aspect of seismic activities. Temporary disturbance to wildlife may be accompanied by habitat loss through changes in water, soil, and vegetative characteristics from heavy equipment damage. Use of ground vehicles may result in long term vegetation change and scenic impacts, where trees are clear cut along a straight compass line. This may be mitigated by requiring helicopter transport of the device producing the seismic wave or drilling equipment (when subsurface explosives are used).

(2) Exploratory Drilling.

(a) When geological and geophysical surveys are favorable for oil and gas, exploratory drilling may be justified. There are basically two types of exploratory drilling: core drilling and wildcat tests. Core drilling involves drilling relatively shallow holes to supplement seismic data. The holes are usually 34.48 to several hundred meters (100 to several thousand feet) deep. Wildcat tests involve drilling in unproven territory to provide information about whether the area actually contains oil and gas. Core drilling apparatus is readily helicopter transportable.

(b) Typical drilling facilities consist of access road(s), drill pad, drill rig, mud pumps, mud pit, generators, pipe rack, and tool house. Other requirements include 4,730 to 14,191 liters (5,000 to 15,000 gallons) of water a day for mixing drilling mud, cleaning equipment, cooling engines, et cetera. Mud pits should always be lined to prevent fluid loss, or portable containers should be utilized instead. Drill muds are used to lubricate the drill bit and remove cuttings. Muds are mixed on-site to match downhole physical properties. They may contain heavy metals and other hazardous materials. Cuttings may contain minerals which become contaminants when oxidized on the surface.

(c) Most exploratory wells are drilled relatively straight and vertical. However, in a situation where the drill site cannot be situated directly over the subsurface drill target, directional drilling may be employed. There may be serious physical, economic, and technical constraints on the use of directional drilling. Directional drilling may, in certain instances, present the project leader with a viable alternative method for reconciling oil and gas activities with resource values. When federally owned oil and gas rights are the issue, the project leader may determine that directional drilling is the only method which protects Service resources adequately. In the case of reserved or excepted rights, it may be more difficult to stipulate that directional drilling would be required. In this case, the project leader may have to demonstrate that there is no alternative if Service resources are to be adequately protected. Where surface values would be destroyed by construction of access roads to exploratory sites, exploratory wells can be drilled by helicopter transportable rigs. In Alaska, temporary winter ice roads can provide access for the drill rig.

D. Development.

(1) If an exploratory well becomes a discovery well; i.e., a well that yields commercial quantities of oil and gas, additional wells may be drilled to confirm the discovery, to establish the extent of the field, and to efficiently chart the reservoir. Spacing of wells drilled under Federal lease is usually a minimum of 16.19 hectares (40 acres) for oil and between 64.78 and 259.11 hectares (160 and 640 acres) for natural gas. Spacing of wells drilled in accordance with reserved or excepted rights would vary by State.

(2) The project leader may decide to designate a temporary road system before a permanent system is

decided upon. Permanent road systems may be determined after productive wells are identified and potential production ascertained. In addition to roads, other facilities required in development may include flowlines, storage tanks, separators, treaters, and injection wells.

(3) Occasionally, developers of adjacent mineral rights may enter into agreement to "unitize" the field, which may involve private as well as Service lands. "Unitizing" involves the development and operation of a field as a unit, disregarding separate ownerships. Costs and benefits would be allocated according to agreed terms.

(4) Usually, 10.26 to 15.38 centimeters (4-to-6-inch) diameter pipelines are used to transport the petroleum between the well, treating and separating facilities, and central collection points. These lines may be on the surface, buried, or elevated. Pipelines are usually buried because of flow problems in winter and mechanical damage that may occur on the surface. Two methods are used separately or in conjunction to transport oil out of a lease or unitized area: tanker trucks and pipelines. Oil may be transported by truck from small fields but pipelines are the most common method of transporting oil and gas. Oil and gas must be transported separately because of their different physical characteristics.

E. Production.

(1) Production begins just after the discovery well is completed and is usually concurrent with development operations. Temporary facilities may be used at first, but as development proceeds and reservoir limits are determined, permanent facilities are installed.

(2) Many wells require artificial lift to bring oil to the surface. Two methods of artificial lift are generally used: gas lift and pumping. Gas lift involves forcing high pressure gas down the drill hole. Fluid that is standing in the hole is displaced by mixing with gas and rises to the surface. Pumping is the main method of artificial lift with various types of pumps utilized. Pumps are usually powered by electric motors or internal combustion engines on the surface. Electric motors make less noise and require less maintenance but electric power is often not available. One commonly used type of artificial lift device is a rod pump which uses an electric motor (or internal combustion engine) to run a surface device ("pumping jack") that imparts an up-and-down motion to a string of steel rods (sucker rods) which in turn is connected to and operates the bottomhole pump.

(3) Most gas wells produce by normal flow and do not require pumping. Surface use at a flowing gas well is usually limited to a fenced area 6.1 meters (20 feet) square containing a gas well "Christmas tree". On site facilities include those described under development.

F. Abandonment and Rehabilitation.

(1) The life spans of oil and gas fields vary with such factors as reserves; reservoir characteristics; nature of petroleum; subsurface geology; and political, economic, and environmental constraints. Dry wells and those that formerly produced are often plugged with cement, with the casing sometimes filled with heavy mud. After plugging, all related above-ground support facilities must be removed from the site. Removal of subsurface facilities, such as pipelines, is subject to State laws and project leader discretion.

(2) Restoration stipulations will be incorporated into any permits issued, supplemented by detailed information on rehabilitation procedures in the operational plan. Depending on the site, drilling mud may be injected into the well and buried or hauled away in accordance with State law. All hazardous substances will be removed from the site and disposed of in an approved hazardous material dumping site. The permittee shall, unless otherwise directed by the project leader, restore access roads and sites to original surface contours and revegetate with appropriate native flora.

2.11 Ensuring Compliance with Permit Conditions. To ensure that operations are carried out in a

reasonable manner, resulting in no unnecessary adverse effects, the project leader shall initiate a written record of activities from initial contact through completion of the oil and gas activity. This file will generally contain records of conversations, correspondence, photos, evaluations, and test results (if required). This record serves an integral function in documenting violations should they occur.

2.12 Coordination and Review. Oil and gas activities may require consultation with other agencies or offices by regulation or as a source of information.

A. Service Offices (Regional Director, Realty, Ecological Services, Law Enforcement). The Regional Director is usually consulted on controversial issues or appeals. Realty is a source of information when the location or ownership of mineral rights is in question. Ecological Services must be consulted when section 404 permits, for dredged or fill material (33 U.S.C. 1344), are required due to wetland alterations. Ecological Services field offices may provide expert advice on oil and gas management plans, project design, and special use permit stipulations. Law Enforcement may be needed when there is a violation of a permit.

B. Other Department Offices (Bureau of Land Management (BLM), U.S. Geological Survey (USGS), Solicitor). Legal questions may be answered or clarified by the Solicitor's office. The BLM is responsible for the issuance of leases on federally owned oil and gas rights. The BLM and USGS may be helpful in designing stipulations or determining drainage.

C. Other Agencies (Corps of Engineers, State agencies). The Corps of Engineers issues 404 permits protecting wetlands. A variety of State agencies may be helpful in the management of oil and gas activities on Service lands, particularly conservation and minerals management sections.

2.13 Preparation of an Oil and Gas Management Plan. An oil and gas management plan is recommended on Service lands where oil and gas activity is projected or active. The format of such a plan should be in accordance with Regional guidelines. At a minimum, the plan should include the following:

A. Current project maps (operational and topographic) and aerial photos.

B. Mineral ownership information by tract.

C. Names and telephone numbers of Federal, State, and local agencies or personnel overseeing oil and gas activities.

D. Descriptions of project purposes and objectives.

E. Descriptions of project populations, habitat and programs including identification of sensitive species and areas.

F. A list of applicable regulations and policies (Federal, State, and project).

G. Excerpts from deeds regarding mineral rights status.

H. Descriptions of past, present, and proposed oil and gas activities on the unit.

I. A list of suggested standard permit stipulations.

J. Potential impacts and protective and corrective measures.

2.14 Selected References and Sources of Information. The following list of references represents a small selection of source data which may be helpful in managing oil and gas activities on Service lands. The references may be especially useful in designing stipulations to protect resources.

(A) A Primer of Oil Well Service and Workbook, p.106; Petroleum Extension Service, University of Texas, Austin, TX; 1979.

(B) Controlled Directional Drilling, p.49; Petroleum Extension Service, University of Texas; Austin, TX; 1984.

(C) Drilling, a Source Book on Oil and Gas Well Drilling from Exploration to Completion; J. A. Short/Pennwell Publishing Company; Tulsa, OK; 1983.

(D) Drilling Mud, p.71; Petroleum Extension Service, University of Texas; Austin, TX; 1984.

(E) Facts About Oil, p.44; American Petroleum Institute; Washington, DC; 1984.

(F) Geophysics in Petroleum Exploration, p.24; American Petroleum Institute; Washington, DC.

(G) Introduction to Oil and Gas Production, p.81; American Petroleum Institute; Washington, DC; 1983.

(H) Managing Oil and Gas Activities in Coastal Environments, p.541; W.F. Longley, R. Jackson and B. Snyder/U.S. Fish and Wildlife Service, Office of Biological Services, Washington, DC; 1981. Also see FWS/OBS - 78/54 Managing Oil and Gas Activities in Coastal Environments, p.66.

(I) Natural Resources Protection and Petroleum Development in Alaska, p.305; U.S. Fish and Wildlife Service, Biological Services Program, Washington, DC; FWS/OBS - 80/22; 1984. Also see FWS/OBS - 80/23 Handbook for Management of Oil and Gas Activities on lands in Alaska, p.64.

(J) Oil and Gas Guide, Northern Region, Training Guide; US Department of Agriculture; US Forest Service, R-1; 1979.

(K) Oil and Gas Use Characterization, Impacts, Guidelines, p.148; US Department of Commerce; Louisiana State University; Baton Rouge, LA; See Grant Publication No. LSU-J-76-006; 1976.

(L) Pipeline Construction, p.123; M. Hosmanck/Petroleum Extension Service, University of Texas; Austin, TX; 1984.

(M) Seismic Exploration Fundamentals, p.85; J.A. Coffeen/PennWell Publishing Company; Tulsa, OK; 1978.