GAO
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United States General Accounting Office
Washington, DC 20548

October 31, 2001

The Honorable Edward J. Markey
House of Representatives

Subject: U.S. Fish and Wildlife Service: Information on Oil and Gas Activities in the National Wildlife Refuge System

Dear Mr. Markey:

This letter responds to your request for specific information on activities related to oil and gas development and production that occurs in the U.S. Fish and Wildlife Service's National Wildlife Refuge System. The first national wildlife refuge was created in 1903 when President Theodore Roosevelt set aside a tiny island off the east coast of Florida for the protection of pelicans and other species of birds. Since then, the National Wildlife Refuge System has grown to encompass more than 93 million acres of land and more than 560 national wildlife refuges and wetland management districts. At least one of these units can be found in every state and U.S. territory.[1] You asked that we provide answers to seven specific questions. Those questions and our answers follow.

**1. How many units of the National Wildlife Refuge System had oil or gas activities on their lands in calendar year 2000?**

Seventy-seven of the 567 units–about 14 percent–of the National Wildlife Refuge System had oil or gas activities on their land in calendar year 2000. These units are located in 22 states and distributed through all seven regions of the Fish and Wildlife Service. The states of Louisiana, with 19 units, and Texas, with 11 units, had the most units with oil or gas activity.

We used the Fish and Wildlife Service's criteria for determining whether a unit of the National Wildlife Refuge System had oil or gas activity in calendar year 2000.

[1]For the purposes of this letter, the National Wildlife Refuge System consists of 567 units including 530 refuges and 37 wetland management districts that contain waterfowl production areas. Units of the National Wildlife Refuge System, as defined in 50 CFR 25.12, include wildlife refuges, wildlife ranges, wildlife management areas, and waterfowl production areas. Wetland Management Districts are a management entity created to administer the waterfowl production areas. We did not consider any of the 50 coordination areas that are in the refuge system in our study because state fish and wildlife agencies generally manage these areas.

Specifically, a unit was considered to have oil or gas activity if one or more of the following occurred or existed on its land:

- Surface geological studies—such studies examine the distribution and position of surface rocks to help determine the characteristics of an area and the likelihood of its having oil or gas resources. This type of activity is usually performed with very little surface disturbance.
- Geophysical surveys—such surveys gather subsurface geological information on such things as differences in the densities of various types of rock and the location of subsurface rock structures. Geophysical surveys include seismic surveys, which provide the most reliable information on an area's likelihood of having oil or gas reserves. Seismic surveys gather subsurface geological information through the generation and receipt of impulses from artificially generated shock waves. According to the Fish and Wildlife Service, the vehicular traffic associated with seismic surveys is potentially the most environmentally damaging aspect of seismic activities.
- Exploration or development wells
- Producing wells
- Production facilities
- Natural gas or oil pipeline

Enclosure I contains a complete list of the 77 units by Fish and Wildlife Service region and state as well as the type of oil or gas activity that occurred in the unit in calendar year 2000.

**2. Under what circumstances did oil or gas activities occur in these units of the National Wildlife Refuge System?**

Oil and gas activities were allowed to take place in these 77 units of the National Wildlife Refuge System for a variety of reasons. In the majority of the units–41 out of 77–oil or gas activity occurred where private entities, states, or native corporations, rather than the federal government, own the mineral rights. Owners of these mineral rights have the right to develop, produce, and transport the oil and gas resources located within a refuge. However, the Department of the Interior's regulations require mineral owners to the greatest extent practicable to conduct these activities in a way that prevents damage, erosion, pollution, or contamination to the lands, waters, facilities, and vegetation of the refuge.

In 27 units, a pipeline constituted the only oil or gas activity within a refuge, and these pipelines either were present before the Fish and Wildlife Service acquired the land or were constructed under a right-of-way permit issued by the Fish and Wildlife Service after the land was acquired.

In eight units the federal government owned the mineral rights and leased the refuge land for oil and gas development. Details on how these oil or gas activities were initiated are provided in our response to question 5.

Finally, in one additional refuge, a surface geological study was conducted during the year 2000 under a Fish and Wildlife Service special use permit. Special use permits can authorize commercial activities on national wildlife refuges when the federal government owns the mineral rights. The specific refuge on which the activity takes place issues these permits.

3. **In how many units of the National Wildlife Refuge System was oil or gas produced in calendar year 2000?**

Oil or gas was produced in 45 of the 567 units–about 8 percent–of the National Wildlife Refuge System in calendar year 2000. These 45 units are located in 15 states, with 19 units (about 42 percent) in Texas and Louisiana. The number of producing wells in these 45 units ranges from 1 in the Canaan Valley National Wildlife Refuge in West Virginia to over 300 in the Upper Ouachita National Wildlife Refuge in Louisiana. Oil and gas production in some of these units, such as Louisiana's Black Bayou Lake National Wildlife Refuge and D'Arbonne National Wildlife Refuge, began as early as the 1920s. Enclosure II lists the 45 units that had a producing well in calendar year 2000.

4. **In how many units with oil or gas production in calendar year 2000 did the federal government own the oil and gas mineral rights?**

We identified eight units (seven national wildlife refuges and one wetland management district) with oil or gas production in calendar year 2000 in which the federal government owned the oil and gas mineral rights (see table 1).

**Table 1: National Wildlife Refuge System Units With Oil or Gas Production in Calendar Year 2000 in Which the Federal Government Owned the Oil and Gas Mineral Rights**

| Unit | State |
|---|---|
| Bitter Lake National Wildlife Refuge | New Mexico |
| Bowdoin Wetland Management District | Montana |
| Delta National Wildlife Refuge | Louisiana |
| Hewitt Lake National Wildlife Refuge | Montana |
| J. Clark Salyer National Wildlife Refuge | North Dakota |
| Medicine Lake National Wildlife Refuge | Montana |
| Salt Plains National Wildlife Refuge | Oklahoma |
| Upper Souris National Wildlife Refuge | North Dakota |

Source: GAO analysis of Fish and Wildlife Service data.

5. **Under what circumstances were oil or gas production activities allowed to take place in units of the National Wildlife Refuge System in which the federal government owns the oil and gas mineral rights?**

In two of the eight units, oil or gas was already being produced on the land when the Fish and Wildlife Service acquired it for inclusion in the National Wildlife Refuge System. In four units, the federal government leased the refuge land for oil and gas development to protect its interest in oil or gas resources that were being drained from refuge land by wells of another owner operating on adjacent land. In one of the

two remaining units, the executive order establishing the refuge in 1938 opened its land to oil and gas leasing because it was located on a known producing gas field and, at the time, oil and gas development on refuge land was not prohibited by Interior's regulations. In the other refuge, leasing was allowed under an exception to Interior's 1947 regulations that prohibited oil and gas leasing on refuge land. This exception, which no longer exists, allowed leasing if the lessees had an approved unit agreement plan that stipulated how the oil and gas field would be developed and operated.

The Secretary of the Interior, through the Bureau of Land Management, issues oil and gas leases on federal lands under various authorities. As originally enacted, the Mineral Leasing Act of 1920 authorized the Secretary of the Interior to issue leases for oil and gas development on public domain lands including lands reserved for wildlife refuges.[2] The only exceptions were cases in which the executive order establishing the refuge restricted or prohibited such activity. In 1947, the Mineral Leasing Act for Acquired Lands authorized the Secretary of the Interior to lease for oil and gas development on Fish and Wildlife Service lands that the federal government had acquired.[3]

In addition to these legislative authorities, the Secretary of the Interior has the right to lease lands where drainage is occurring.[4] Drainage is the depletion of publicly owned minerals without compensation through an extraction operation on adjacent land of another owner. Once the Bureau of Land Management determines that drainage is occurring on refuge land, it requests the Fish and Wildlife Service's consent to lease the land. Leasing allows the federal government to collect a compensatory royalty for the oil and gas loss from drainage. Before agreeing to lease the land, the Fish and Wildlife Service must determine that the proposed activity is compatible with the purpose for which the refuge was established and provide the Bureau with recommendations for lease stipulations. The Bureau of Land Management is then responsible for competitively leasing the land and issuing and managing the lease.

Since at least 1947, however, Department of the Interior regulations have prohibited oil and gas leasing of refuge lands outside of Alaska with a few exceptions, such as drainage. Leasing of refuge lands can be done only with the consent of the Fish and Wildlife Service under stipulations that specify the time, place, and nature of the operations that may occur. When a drainage lease is issued, it generally contains a "no surface occupancy" stipulation, that prohibits the occupancy and use of refuge land for the extraction of resources. As a result, operators who obtain such a lease

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[2]The public domain refers to lands or interests in lands that have never left the ownership of the United States, that were obtained by the United States in exchange for public lands or for timber on such lands, and lands that have reverted to the ownership of the United States through operation of the public land laws.

[3]Acquired lands are lands that the United States obtained by deed through purchase, gift, or condemnation proceedings, including lands previously disposed of under the public land or mining laws.

[4]This general authority was defined by an Attorney General's Opinion of Apr. 2, 1941 (Vol. 40 Op. Atty. Gen. 41).

must extract the oil and gas from land located outside the boundaries of the refuge. This can be accomplished through the use of directional drilling. However, the Fish and Wildlife Service's consent would be required before the Bureau of Land Management could approve any well that drilled under refuge lands.

Table 2 summarizes the reasons why oil or gas production was allowed in eight units of the National Wildlife Refuge System in which the federal government owned the oil and gas mineral rights.

**Table 2: Reasons for Allowing Oil or Gas Production in Units of the National Wildlife Refuge System in Which the Federal Government Owned the Oil and Gas Mineral Rights**

| Unit | Reasons for allowing oil or gas production | | | |
|---|---|---|---|---|
| | Pre-existing production | Drainage occurring | Regulations did not prohibit activity[a] | Exception to regulations prohibiting activity[b] |
| 1. Bitter Lake National Wildlife Refuge | X | X | | |
| 2. Bowdoin Wetland Management District | X | | | |
| 3. Delta National Wildlife Refuge | | | | X |
| 4. Hewitt Lake National Wildlife Refuge | | | X | |
| 5. J. Clark Salyer National Wildlife Refuge | | X | | |
| 6. Medicine Lake National Wildlife Refuge | | X | | |
| 7. Salt Plains National Wildlife Refuge | | X | | |
| 8. Upper Souris National Wildlife Refuge | | X | | |

[a] Before 1947, Department of the Interior regulations did not prohibit oil and gas leasing on refuge lands.
[b] In 1947, the Department of the Interior issued regulations prohibiting oil and gas leasing on refuge lands with a few exceptions. As discussed below, the Delta refuge allowed oil and gas development under one of these exceptions.

Source: GAO analysis of data from the Fish and Wildlife Service and Bureau of Land Management.

The following discussion presents detailed information on the circumstances under which oil or gas production occurred in each of the eight units of the National Wildlife Refuge System in which the federal government owned the oil and gas mineral rights.

## Bitter Lake National Wildlife Refuge

The Bitter Lake National Wildlife Refuge was established in 1937 and is located in New Mexico. According to officials at the Bureau of Land Management, the refuge boundary was expanded in 1968 under a public land order. The federal government already owned the mineral rights on the land acquired in the expansion, and in the

1950s, the Bureau of Land Management had issued two leases for oil and gas development on it under the Mineral Leasing Act of 1920. Subsequently, producing oil wells were developed on the land under these leases. As a result, when the Bitter Lake refuge acquired this land, the refuge became a unit that has producing oil wells whose mineral rights are owned by the federal government. In April 1994, the Bureau of Land Management issued another oil and gas lease on the refuge. This lease was issued to protect the government's interest in gas resources being drained from the Bitter Lake refuge. The lease contained a "no surface occupancy" stipulation that prohibits the occupancy or use of the refuge land to extract the resource.

Bowdoin Wetland Management District

The Bowdoin Wetland Management District was created in 1958 to administer the waterfowl production areas in northern Montana. According to officials at the Bureau of Land Management, portions of the Bowdoin Wetland Management District sit atop a very large gas field that has been producing since the 1940s. In 1991, the Fish and Wildlife Service acquired over 2,000 acres of land from Aetna Insurance Company to be managed as part of the Bowdoin Wetland Management District. Some of this acquired land had producing gas wells. Although private entities owned the mineral rights for most of these wells, the federal government owned the rights for two of them. As a result, when the service acquired this land, the Bowdoin Wetland Management District became an area that had gas production on refuge system land for which the federal government owned the mineral rights.

Delta National Wildlife Refuge

The Delta National Wildlife Refuge, established in 1935, is located at the mouth of the Mississippi River in Louisiana. Over 50 percent of the refuge's land has some sort of oil or gas activity. This activity was initiated in 1949 when the Department of the Interior issued a total of six oil and gas leases on the land of the refuge. The federal government owned the mineral rights for these leased lands. At that time, although Interior's regulations generally prohibited oil and gas leases on refuge land, there were exceptions. One of these exceptions was in cases where a group of lessees would develop a unit agreement plan that would stipulate how they planned to develop and operate an oil or gas field in a refuge. If the Secretary of the Interior, with the consent of the Fish and Wildlife Service, approved the plan, oil and gas leases could be permitted on a refuge. This exception was used to initiate oil and gas leasing in the Delta refuge.

Hewitt Lake National Wildlife Refuge

The Hewitt Lake National Wildlife Refuge, located in northeastern Montana, was established in 1938. The refuge contains a large gas field in which the federal government owns much of the mineral rights. The executive order establishing the refuge permitted oil and gas leasing. Specifically, the order noted that the refuge land was within the known geologic structure of a producing gas field and stated that nothing should affect the disposition of its oil and gas deposits under the Mineral

Leasing Act of 1920. In addition, at that time, Interior's regulations did not prohibit oil and gas leasing on refuge land. Accordingly, in the early 1940s, the Department of the Interior issued seven leases for gas exploration and development within the refuge under the Mineral Leasing Act of 1920. Currently, the refuge has a total of eight producing gas wells.

J. Clark Salyer National Wildlife Refuge

The J. Clark Salyer National Wildlife Refuge is located in North Dakota and was established in 1935. Currently, the refuge has seven producing oil wells. These wells were drilled as part of four leases issued in the 1960s by the Secretary of the Interior under the Mineral Leasing Act for Acquired Lands of 1947 when it was determined that drainage was occurring on refuge land. The Fish and Wildlife Service has also issued subsequent leases for oil and gas development within the J. Clark Salyer refuge. Specifically, in the early 1990s, the Bureau of Land Management determined that oil wells operating outside the boundaries of the refuge were draining oil resources from refuge land to which the federal government owned the mineral rights. In order to protect the federal government's interest in these resources, the Bureau recommended that the Fish and Wildlife Service allow oil and gas leasing on two tracts of refuge land. The Fish and Wildlife Service agreed to allow a lease for the tracts if it contained a "no surface occupancy" stipulation. In May 1992, the Bureau issued such a lease for the land.

Medicine Lake National Wildlife Refuge

The Medicine Lake National Wildlife Refuge, located in northeastern Montana, was established in 1935. Oil development on the refuge was initiated in the mid-1980s, when the Bureau of Land Management determined that a well located on land adjacent to the refuge was draining the oil owned by the federal government. To protect the government's interest in this resource, the Fish and Wildlife Service allowed the Bureau of Land Management to issue an oil and gas lease. The lease resulted in two wells being drilled on refuge land. In January 1999, the Fish and Wildlife Service again allowed leasing on refuge land to protect the government's resources against drainage. The lease, however, contains a " no surface occupancy" stipulation.

Salt Plains National Wildlife Refuge

The Salt Plains National Wildlife Refuge, established in 1930 and located in Oklahoma, currently has a total of nine oil and gas leases. Oil and gas development was initiated in this refuge in 1965, when the Bureau of Land Management issued six leases because of drainage. These leases were issued under the Mineral Leasing Act of 1920 for refuge land that was in the public domain and under the Mineral Leasing Act for Acquired Lands of 1947 for refuge land that was acquired. The Bureau issued two additional leases in 1981 and 1982, when the federal government determined that oil and gas resources that it owned were again being drained from the refuge. In

2000, the Bureau issued the ninth oil and gas lease when another determination of drainage was made on refuge land.

Upper Souris National Wildlife Refuge

The Upper Souris National Wildlife Refuge was established in North Dakota in 1935. The refuge currently has oil production activities on its land as a result of six oil and gas leases. Five of the six leases were issued in the mid-1970s, after the Bureau of Land Management determined that oil resources owned by the federal government were being drained from the refuge by oil wells located on private land outside the refuge boundary. The Bureau issued an additional lease in 1990 when it determined that further drainage was occurring from refuge land. The 1990 lease, however, contains a "no surface occupancy' stipulation.

6. **Since the passage of the National Wildlife Refuge System Administration Act of 1966, have leases for oil or gas activities on refuges been issued for reasons other than drainage?**

No leases have been issued for reasons other than drainage since the Congress enacted the National Wildlife Refuge System Administration Act of 1966. The act defines the refuge system as it is known today. Specifically, the act consolidated the various categories of lands administered by the Secretary of the Interior and other agencies for the conservation of fish and wildlife into a single National Wildlife Refuge System managed by the Fish and Wildlife Service. The act also established wildlife conservation as a unifying mission for the refuge system and set up a process for determining compatible uses of refuge lands.

Since passage of this legislation, the Fish and Wildlife Service has approved the issuance of 13 leases on five of the eight refuges that had oil or gas production in 2000 and for which the federal government owned the mineral rights. In each case, the leases were issued because operators on land adjacent to the refuge boundaries were draining oil or gas resources owned by the federal government from refuge land without compensation. Table 3 identifies the five refuges and the number and year in which the leases were issued.

**Table 3: Units of the National Wildlife Refuge System With Leases Issued after 1966 Because of Drainage**

| Unit | Year lease issued (number of leases) |
|---|---|
| Bitter Lake National Wildlife Refuge | 1994 (1) |
| J. Clark Salyer National Wildlife Refuge | 1992 (1) |
| Medicine Lake National Wildlife Refuge | 1985 (1); 1999 (1) |
| Salt Plains National Wildlife Refuge | 1981 (1); 1982 (1); 2000 (1) |
| Upper Souris National Wildlife Refuge | 1974 (2); 1975 (1); 1976 (2); 1990 (1) |

Source: GAO analysis of data from the Fish and Wildlife Service and Bureau of Land Management.

In July 1993, the Fish and Wildlife Service formally issued guidance to further protect fish and wildlife habitat in cases of oil and gas leasing due to drainage. Specifically,

the new guidance stated that any oil or gas lease issued because of drainage should stipulate a "no surface occupancy" requirement where possible. Since the issuance of this requirement, three new oil and gas leases have been approved by the Fish and Wildlife Service in the five refuges, each with the "no surface occupancy" stipulation.

**7. What funding and staff resources does the Fish and Wildlife Service provide its refuge units to manage oil and gas activities?**

The Fish and Wildlife Service does not have a line item in its budget to fund the management of oil and gas activities that occur in the National Wildlife Refuge System. As a result, units that have individuals assigned to the management of oil and gas activities usually use funds from their unit budget or find alternative sources of funds for this function. According to the Fish and Wildlife Service, the only person assigned at headquarters to monitor all oil and gas activities in the National Wildlife Refuge System performs this task as a collateral duty. Further, only one unit of refuge system--the Sabine National Wildlife Refuge in Louisiana--has a full-time person assigned to these duties.

The Sabine National Wildlife Refuge established an oil and gas specialist position in September 2000. Prior to this, the refuge did not have a dedicated person to manage oil and gas activities. The position is funded from a damage fund account, which contains monies collected from oil and gas operators for site-specific damage to refuge land. The person assigned to this position is responsible for managing all aspects of oil and gas activities in the Southwest Louisiana Refuge Complex, which includes the Sabine and Cameron Prairie National Wildlife Refuges.

According to the Service, other units of the refuge system use individuals who were hired and trained to perform other functions to help manage oil and gas activities. For example, for the past 4 years, at the Arctic National Wildlife Refuge a refuge operation specialist who is responsible for aquatic and coastal resource issues has also managed oil and gas activities. For the last 2 years, however, managing oil and gas activities has taken most of his/her time. The position is funded from the unit's base fund that pays for all permanent full-time staff.

The Kenai National Wildlife Refuge in Alaska also has had a person designated to spend half his/her time on managing oil and gas activities in the refuge for the past 6 years. Currently, the person responsible for managing oil and gas activities is also in charge of maintenance on this 2 million-acre refuge. These duties include maintaining the facilities, recreation sites, and vehicles, as well as other duties. The oil and gas portion of this person's duties are currently funded from a revenue-sharing account that collects a portion of concession fees as well as monies derived from timber cutting, fur trapping, and oil and gas activities.

## Scope and Methodology

To determine the number of units within the National Wildlife Refuge System that had oil and gas activity on their lands in calendar year 2000, we used the Fish and

Wildlife Service's Refuge Management Information System database as of July 2001. To ensure that the database information was accurate and complete, we contacted the Fish and Wildlife Service regional offices and had them verify our list. We then contacted each of the identified refuges and wetland management districts to determine under what circumstances oil and gas activities were allowed to begin and whether the unit had oil or gas production in calendar year 2000.

For each refuge or wetland management district that had oil or gas production in calendar year 2000, we contacted the unit to determine whether the federal government owned the mineral rights to the land where production was occurring. If the government owned the mineral rights, we then determined under what conditions the unit allowed oil and gas production. We also contacted officials of the Bureau of Land Management who are responsible for issuing oil and gas leases on refuge land to obtain copies of the leases and determine the circumstances under which leasing occurred.

To determine whether any oil and gas leases had been issued for reasons other than drainage since the passage of the National Refuge System Administration Act of 1966, we first determined whether any oil or gas leases had been issued since 1966 by any of the eight refuges that had oil or gas production in 2000 and in which the federal government owned the mineral rights. We identified five refuges that met those criteria. From each of those five refuges, we then obtained copies of all oil and gas leases issued after 1966 and determined the reasons for the issuance of each lease.

To determine the type and amount of resources the Fish and Wildlife Service provides its refuge units to manage oil and gas activities, we discussed this issue with key headquarters officials and selected individual refuge managers.

We conducted our work from August through October 2001 in accordance with generally accepted government auditing standards.

**Agency Comments**

We provided copies of a draft of this letter to the Department of the Interior for review and comment. The Department of the Interior generally agreed with the findings in the letter. The Department also attached comments from its Fish and Wildlife Service and the Bureau of Land Management. The Fish and Wildlife Service commented that the Refuge Management Information System database, which it provided to us to identify refuges with oil and gas activity, does not include a comprehensive listing of refuges with pipelines. The Service commented that it lacks a full accounting of all refuges that have pipelines or are vulnerable to spills from pipelines but it knows the data it provided to us is not inclusive. For example, the Service stated that in February 2000, about 180,000 gallons of crude oil leaked from a pipeline that crosses the John Heinz National Wildlife Refuge at Tinicum in Pennsylvania. However, this refuge is not in the Service's database. We added the John Heinz refuge to our listing of refuges with oil or gas activities. The Fish and

Wildlife Service and the Bureau of Land Management also provided several technical clarifications, which we incorporated into the letter as appropriate.

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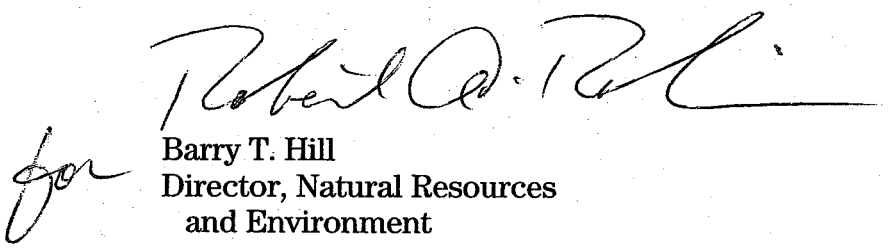
As agreed with your office, unless you publicly announce its contents earlier, we plan no further distribution of this letter until 30 days after the date of this letter. At that time, we will send copies to the Secretary of the Interior, the Director of the U.S. Fish and Wildlife Service, the Director of the Bureau of Land Management, and other interested parties. This letter will also be available on GAO's home page at http://www.gao.gov.

If you or your staff have any questions about this letter, please call me at (202) 512-3841. Key contributors to this letter were José Alfredo Gómez, Ben Mills, Cheryl Pilatzke, and Jim Yeager.

Sincerely yours,



for Barry T. Hill
Director, Natural Resources
and Environment

## National Wildlife Refuge System Units With Oil or Gas Activities in Calendar Year 2000

| Fish and Wildlife Service region | Unit | State | Surface geological study | Geophysical survey (e.g., seismic) | Exploration or development well | Producing well | Production facility | Pipeline |
|---|---|---|---|---|---|---|---|---|
| 1 | Hopper Mountain NWR | CA | | | | ✔ | ✔ | ✔ |
| 1 | Sacramento River NWR | CA | | | | ✔ | | |
| 1 | Seal Beach NWR | CA | | | | ✔ | ✔ | ✔ |
| 1 | Sutter NWR | CA | | | | ✔ | | ✔ |
| 2 | Bitter Lake NWR | NM | | | | ✔ | ✔ | ✔ |
| 2 | Deep Fork NWR | OK | | | | | | ✔ |
| 2 | Optima NWR | OK | | | | ✔ | ✔ | ✔ |
| 2 | Salt Plains NWR | OK | | | | ✔ | ✔ | ✔ |
| 2 | Washita NWR | OK | | | | ✔ | ✔ | ✔ |
| 2 | Anahuac NWR | TX | | | | ✔ | | |
| 2 | Aransas NWR | TX | | | | ✔ | ✔ | ✔ |
| 2 | Big Boggy NWR | TX | | ✔ | | | | ✔ |
| 2 | Brazoria NWR | TX | | | ✔ | ✔ | ✔ | ✔ |
| 2 | Hagerman NWR | TX | | | | ✔ | ✔ | ✔ |
| 2 | Lower Rio Grande Valley NWR | TX | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 2 | Matagorda Island NWR | TX | | | | ✔ | | ✔ |
| 2 | McFaddin NWR | TX | | | | ✔ | | |
| 2 | San Bernard NWR | TX | | ✔ | | ✔ | ✔ | ✔ |
| 2 | Texas Point NWR | TX | | | | | | ✔ |
| 2 | Trinity River NWR | TX | | ✔ | | | | ✔ |
| 3 | Mark Twain NWR | IL | | | | | | ✔ |
| 3 | Patoka River NWR&MA | IN | | | ✔ | ✔ | | |
| 3 | Kirtlands Warbler WMA[a] | MI | | | ✔ | ✔ | | ✔ |
| 3 | Detroit Lakes WMD | MN | | | | | | ✔ |
| 3 | Litchfield WMD | MN | | | | | | ✔ |
| 3 | Minnesota Valley NWR | MN | | | | | | ✔ |
| 3 | Sherburne NWR | MN | | | | | | ✔ |
| 3 | Leopold WMD | WI | | | | | | ✔ |
| 3 | Upper Mississippi River NW and Fish Refuge-Complex | WI,MN IL, IA | | | | | | ✔ |
| 4 | Choctaw NWR | AL | | | | ✔ | | ✔ |
| 4 | Wheeler NWR | AL | | | | | | ✔ |
| 4 | Bald Knob NWR | AR | | | | | | ✔ |
| 4 | Cache River NWR | AR | | | | | | ✔ |

| Fish and Wildlife Service region | Unit | State | Surface geological study | Geophysical survey (e.g., seismic) | Exploration or development well | Producing well | Production facility | Pipeline |
|---|---|---|---|---|---|---|---|---|
| 4 | Felsenthal NWR | AR | | | | ✔ | ✔ | ✔ |
| 4 | Overflow NWR | AR | | | | | | ✔ |
| 4 | Pond Creek NWR | AR | | | | | | ✔ |
| 4 | White River NWR | AR | | | | | | ✔ |
| 4 | Atchafalaya NWR | LA | | | ✔ | ✔ | ✔ | ✔ |
| 4 | Bayou Cocodrie NWR | LA | | | | | ✔ | ✔ |
| 4 | Bayou Sauvage NWR | LA | | | | | | ✔ |
| 4 | Big Branch Marsh NWR | LA | | | | | | ✔ |
| 4 | Black Bayou Lake NWR | LA | | | | ✔ | | ✔ |
| 4 | Breton NWR | LA | | | | | | ✔ |
| 4 | Cameron Prairie NWR | LA | | | ✔ | | | |
| 4 | Catahoula NWR | LA | | | | ✔ | ✔ | ✔ |
| 4 | D'Arbonne NWR | LA | | | | ✔ | ✔ | ✔ |
| 4 | Delta NWR | LA | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 4 | Grand Cote NWR | LA | | | | | | ✔ |
| 4 | Handy Brake NWR | LA | | | | | | ✔ |
| 4 | Lacassine NWR | LA | | | | ✔ | ✔ | ✔ |
| 4 | Lake Ophelia NWR | LA | | | | ✔ | ✔ | ✔ |
| 4 | Louisiana WMD | LA | | | | | | ✔ |
| 4 | Mandalay NWR | LA | | | | ✔ | ✔ | ✔ |
| 4 | Sabine NWR | LA | | | ✔ | ✔ | ✔ | ✔ |
| 4 | Tensas River NWR | LA | | | | ✔ | ✔ | ✔ |
| 4 | Upper Ouachita NWR | LA | | ✔ | | ✔ | ✔ | ✔ |
| 4 | Grand Bay NWR | MS | | | | | | ✔ |
| 4 | Mississippi Sandhill Crane NWR | MS | | | | | | ✔ |
| 4 | St. Catherine Creek NWR | MS | ✔ | | ✔ | ✔ | ✔ | ✔ |
| 4 | Carolina Sandhills NWR | SC | | | | | | ✔ |
| 4 | Hatchie NWR | TN | | | | | | ✔ |
| 5 | John Heinz NWR at Tinicum | PA | | | | | | ✔ |
| 5 | Canaan Valley NWR | WV | | | | ✔ | | ✔ |
| 6 | Quivira NWR | KS | | | | ✔ | ✔ | ✔ |
| 6 | Benton Lake NWR | MT | | | | | | ✔ |
| 6 | Benton Lake WMD | MT | | | | ✔ | | ✔ |
| 6 | Bowdoin WMD | MT | | ✔ | ✔ | ✔ | | ✔ |

| Fish and Wildlife Service region | Unit | State | Surface geological study | Geophysical survey (e.g., seismic) | Exploration or development well | Producing well | Production facility | Pipeline |
|---|---|---|---|---|---|---|---|---|
| 6 | Hewitt Lake NWR | MT | | | ✔ | ✔ | | ✔ |
| 6 | Lake Thibadeau NWR | MT | | | ✔ | ✔ | | ✔ |
| 6 | Medicine Lake NWR | MT | | | | ✔ | | ✔ |
| 6 | Medicine Lake WMD | MT | | ✔ | ✔ | ✔ | ✔ | ✔ |
| 6 | Crosby WMD | ND | | | ✔ | ✔ | ✔ | ✔ |
| 6 | J. Clark Salyer NWR | ND | | | | ✔ | ✔ | ✔ |
| 6 | J. Clark Salyer WMD | ND | | | | ✔ | ✔ | ✔ |
| 6 | Upper Souris NWR | ND | | | | ✔ | ✔ | ✔ |
| 7 | Arctic NWR | AK | ✔ | | | | | |
| 7 | Kenai NWR | AK | | ✔ | ✔ | ✔ | ✔ | ✔ |
| | | | | | | | | |

[a]A wildlife management area (WMA) is a unit in the refuge category of the National Wildlife Refuge System.

Note: National Wildlife Refuge (NWR).
Wetland Management District (WMD).

Source: GAO analysis of U.S. Fish and Wildlife Service data.

Enclosure II

## National Wildlife Refuge System Units With Oil-or Gas-Producing Wells in Calendar Year 2000

| Fish and Wildlife Service region | Unit | State |
|---|---|---|
| 1 | Hopper Mountain National Wildlife Refuge | CA |
| 1 | Sacramento River National Wildlife Refuge | CA |
| 1 | Seal Beach National Wildlife Refuge | CA |
| 1 | Sutter National Wildlife Refuge | CA |
| 2 | Bitter Lake National Wildlife Refuge | NM |
| 2 | Optima National Wildlife Refuge | OK |
| 2 | Salt Plains National Wildlife Refuge | OK |
| 2 | Washita National Wildlife Refuge | OK |
| 2 | Anahuac National Wildlife Refuge | TX |
| 2 | Aransas National Wildlife Refuge | TX |
| 2 | Brazoria National Wildlife Refuge | TX |
| 2 | Hagerman National Wildlife Refuge | TX |
| 2 | Lower Rio Grande Valley National Wildlife Refuge | TX |
| 2 | Matagorda Island National Wildlife Refuge | TX |
| 2 | McFaddin National Wildlife Refuge | TX |
| 2 | San Bernard National Wildlife Refuge | TX |
| 3 | Patoka River National Wildlife Refuge & Management Area | IN |
| 3 | Kirtlands Warbler Wildlife Management Area[a] | MI |
| 4 | Choctaw National Wildlife Refuge | AL |
| 4 | Felsenthal National Wildlife Refuge | AR |
| 4 | Atchafalaya National Wildlife Refuge | LA |
| 4 | Black Bayou Lake National Wildlife Refuge | LA |
| 4 | Catahoula National Wildlife Refuge | LA |
| 4 | D'Arbonne National Wildlife Refuge | LA |
| 4 | Delta National Wildlife Refuge | LA |
| 4 | Lacassine National Wildlife Refuge | LA |
| 4 | Lake Ophelia National Wildlife Refuge | LA |
| 4 | Mandalay National Wildlife Refuge | LA |
| 4 | Sabine National Wildlife Refuge | LA |
| 4 | Tensas River National Wildlife Refuge | LA |
| 4 | Upper Ouachita National Wildlife Refuge | LA |
| 4 | St. Catherine Creek National Wildlife Refuge | MS |
| 5 | Canaan Valley National Wildlife Refuge | WV |
| 6 | Quivira National Wildlife Refuge | KS |
| 6 | Benton Lake Wetland Management District | MT |
| 6 | Bowdoin Wetland Management District | MT |
| 6 | Hewitt Lake National Wildlife Refuge | MT |
| 6 | Lake Thibadeau National Wildlife Refuge | MT |
| 6 | Medicine Lake National Wildlife Refuge | MT |
| 6 | Medicine Lake Wetland Management District | MT |
| 6 | Crosby Wetland Management District | ND |
| 6 | J. Clark Salyer National Wildlife Refuge | ND |

| Fish and Wildlife Service region | Unit | State |
|---|---|---|
| 6 | J. Clark Salyer Wetland Management District | ND |
| 6 | Upper Souris National Wildlife Refuge | ND |
| 7 | Kenai National Wildlife Refuge | AK |

[a]A wildlife management area is a unit in the refuge category of the National Wildlife Refuge System.

Source: GAO analysis of U.S. Fish and Wildlife Service data.

(360136)