Naval Petroleum and Oil Shale Reserves

ANNUAL REPORT
OF OPERATIONS
for
Fiscal Year
1 9 9 6

U.S. Department of Energy
Assistant Secretary for Fossil Energy Systems
Washington, D.C. 20585

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FISCAL YEAR 1996 SUMMARY

BACKGROUND

During fiscal year 1996, the Department of Energy continued to operate Naval Petroleum Reserve No. 1 in California and Naval Petroleum Reserve No. 3 in Wyoming through its contractors. In addition, natural gas operations were conducted at Naval Petroleum Reserve No. 3. All productive acreage owned by the Government at Naval Petroleum Reserve No. 2 in California was produced under lease to private companies. The locations of all six Naval Petroleum and Oil Shale Reserves are shown in Figure 1.

Under the Naval Petroleum Reserves Production Act of 1976, production was originally authorized for six years, and based on findings of national interest, the President was authorized to extend production in three-year increments. President Reagan exercised this authority three times (in 1981, 1984, and 1987) and President Bush authorized extended production once (in 1990). President Clinton exercised this authority in 1993 and again in October 1996; production is presently authorized through April 5, 2000.

PRODUCTION AND REVENUES

In fiscal year 1996, production from the Naval Petroleum and Oil Shale Reserves yielded 23 million barrels of crude oil, 137 billion cubic feet of natural gas, and 164 million gallons of natural gas liquid products. Total revenues from all sources were \$442 million, an increase of almost \$25 million from the previous fiscal year, and total expenditures decreased by \$32 million from fiscal year 1995 (from \$195 million to \$163 million). Fiscal year 1996 net revenues of \$279 million were a substantial \$57 million above the fiscal year 1995 figure of \$222 million. From 1976 through fiscal year 1996,

the Naval Petroleum and Oil Shale Reserves generated \$16.9 billion in revenues for the U.S. Treasury, with expenses of \$3.5 billion and net revenues of \$13.4 billion. See Figures 2, 3, and 4.

Naval Petroleum Reserve No. 1

Production Achievements

After peaking at an average of 181,000 barrels per day in 1981, crude oil production at Elk Hills began a gradual decline that averaged 8.3 percent per year from 1984 through 1993. Beginning in fiscal year 1994 the Department of Energy reduced the decline in crude oil production through the use of advanced technologies such as horizontal drilling, an aggressive program of development drilling, remedials and other production-enhancing projects, and continued implementation of the principles of Total Quality Management. Average fiscal year 1996 crude oil production of 59,771 barrels per day represented a decrease of 5.6 percent from 1995. The fiscal year 1996 drilling and remedial programs yielded more than 8,600 barrels of oil per day in additional production, recouped their \$46 million in costs in only 10 months, and will generate tens of

Figure 1. Naval Petroleum and Oil Shale Reserves

millions of dollars in new net revenues for the Federal Government.

Production achievements during 1996 include the following:

- An aggressive drilling program that resulted in 30 new development wells, boosting production by 5,500 barrels of oil per day.
- A successful gas injection project, along with profitable liner replacement and infill drilling programs, which increased oil production in the Shallow Oil Zone to more than 17,000 barrels per day, which is the highest production level from that zone since 1988 and a 10 percent increase from 1995 production levels.
- Oil production for all horizontal wells rose to 11,600 barrels per day. The program was completed with a production increase of 36 percent over 1995.
- The CD Shale pilot gas injection program and its associated remedials have increased production by more than 1,000 barrels of oil per day in the CD Shales.

Awards

The Kern Council of Governments recently recognized the Naval Petroleum Reserves in California with two

Figure 2. Naval Petroleum and Oil Shale Reserves Historical Production

Figure 3. Revenues Versus Costs, 1976-96

distinct regional awards of merit for working to improve the quality of life in Kern County, California, through innovative, cooperative regional planning efforts. For the second consecutive year, the Naval Petroleum Reserves in California received The Ken Volpe

Regional Award of Merit for taking a leadership role in promoting conservation of resources. The award was presented to EG&G Energy Measurements, Inc., a sub-contractor at the Naval Petroleum Reserves in California, for its exemplary work with endangered species. The program has helped many share limited space and resources with endangered species. The second award was a Regional Award of Merit for Community Involvement for the positive learning environment created for math and science students through the Kern County Regional Science Bowl. Since the program's inception in 1993, participation has nearly doubled. Registration for the 1996 Science Bowl indicates interest from nearly 300 students from 17 different high schools. The award was accepted on behalf of the more than 100 employees at the Naval Petroleum Reserves in California who volunteer for the Science Bowl each year. This marks the fourth year that the Naval Petroleum Reserves in California has been recognized by the Kern Council of Governments.

Naval Petroleum Reserve No. 3

Improved Sales Procedures

In order to cut costs and increase efficiency, Naval Petroleum Reserve No. 3 continuously modifies its sales procedures and updates its bidding lists. As a

result, new companies have submitted first-time bids for crude oil and liquid products.

Testing and Evaluation of New Petroleum Technologies

In its second year of operation by the Department of Energy, the Rocky Mountain Oilfield Testing Center continued to serve the oil and gas industry as a testing, evaluation, and demonstration site for new petroleum technologies. As domestic oil companies and national laboratories continue to reduce staffing and budget levels in their research and development departments, the Rocky Mountain Oilfield Testing Center offers a unique opportunity to contribute to the domestic oil industry. In addition, the Center offers training courses in petroleum and environmental sciences to university students and Native Americans desiring practical oilfield experience.

Cost Savings

In an effort to cut costs, contractor personnel at Naval Petroleum Reserve No. 3 were reduced to 113 in fiscal year 1996, a 14 percent decrease from fiscal year 1995. Plans are in place to reduce contractor staffing to 80 by the end of fiscal year 1997. Increased management attention was also placed on production economics and the shutting in of uneconomic wells.

Figure 4. Revenues and Costs, 1976-96

A Bio-Treatment Facility was constructed at Naval Petroleum Reserve No. 3 at a cost of \$60,000 and was opened in January 1996. The facility was designed to treat produced water containing oil and gas by lowering the hydrocarbon content and enhancing the oxygen content. This would allow waste water that was previously injected underground to be re-

leased after treatment to the surface for the benefit of wildlife and livestock. The Bio-Treatment Facility saved the Department approximately \$100,000 in its first year of operation. It was runner-up for the 1996 Department of Energy Pollution Prevention Award and co-winner of the Fossil Energy 1996 Environment Safety and Health Achievement Award.

Naval Oil Shale Reserves

Production Achievements

During fiscal year 1996, production of natural gas from Naval Oil Shale Reserve No. 3 in Colorado increased 15 percent from fiscal year 1995 to a total of almost 3.6 billion cubic feet.

Cost Savings

During fiscal year 1996, Federal Government staff at the Naval Petroleum and Oil Shale Reserves in Colorado, Utah, and Wyoming assumed direct management of operations at the Naval Oil Shale Reserves from the management and operations contractor. This eliminated the need for redundant Departmental and contractor teams and eliminated performance fees that would have been paid to the contractor for this work. Overall costs for the operation and maintenance of the Naval Oil Shale Reserve properties were reduced by \$1 million.

In an effort to become more competitive with industry, the Naval Petroleum and Oil Shale Reserves in Colorado, Utah, and Wyoming initiated a request for proposals from pipeline and gas transportation companies to build a local gathering system connecting all Department of Energy natural gas wells on Naval Oil Shale Reserve No. 3 to a long-distance gas transportation pipeline. An agreement was reached during fis-

cal year 1996 and the gathering system was constructed. Gas started moving through the system on October 1, 1996. Successful completion of this effort is expected to save the Department up to \$400,000 per year in transportation costs and an additional \$40,000 per year in compressor rental and maintenance costs.

Divestment

As a matter of policy, it was determined in fiscal year 1996 that the Naval Petroleum and Oil Shale Reserves were no longer of strategic value to the nation. This and other factors led to the inclusion of provisions in the National Defense Authorization Act for Fiscal Year 1996 (Public Law 104-106) that require DOE to sell all of the Federal Government's interests in Naval Petroleum Reserve No. 1 and to study potential options to maximize the value of the other five Naval Petroleum and Oil Shale Reserves.

Program Management

During fiscal year 1996, the Naval Petroleum and Oil Shale Reserves Program reported to Assistant Secretary for Fossil Energy Patricia Fry Godley, who was delegated the overall responsibility for achieving the mission and goals of the program. Captain Ernest R. Hunter, CEC, USN, Deputy Assistant Secretary for the Naval Petroleum and Oil Shale Reserves, was responsible for the programmatic and operational management of the Reserves. Danny A. Hogan was the Director of the Naval Petroleum Reserves in California until his retirement in March 1996, at which time O. Jay Williams was appointed Acting Director. Clarke Turner served as Director of the Naval Petroleum and Oil Shale Reserves in Colorado, Utah, and Wyoming. The program maintained offices in Washington, D.C., Bakersfield, California, and Casper, Wyoming.

NAVAL PETROLEUM RESERVE NO. 1

Naval Petroleum Reserve No. 1, Elk Hills, occupies 47,409 acres and is located about 35 miles west of Bakersfield in Kern County, California. It produced more than 21.9 million barrels of crude oil in fiscal year 1996 at an average rate of 59,771 barrels of oil per day. The field ranks among the 11 largest domestic producing oilfields in the lower 48 states. Elk Hills, also one of the nation's top 10 producing gas fields, produced 358 million cubic feet of natural gas per day and 446,000 gallons per day of natural gas liquids in fiscal year 1996. Approximately 69 percent of the produced natural gas is reinjected into the Stevens Zone and Shallow Oil Zone for pressure maintenance.

Most of Naval Petroleum Reserve No. 1 is owned and operated jointly by the Government and Chevron (formerly Standard Oil Company of California) under a Unit Plan Contract executed in 1944. The Unit Plan Contract enables the unit participants to develop the field on a reservoir basis rather than on a parcel-by-parcel basis, and allows for more efficient and greater recovery of petroleum resources by avoiding competitive production of individual parcels. Under the Unit Plan Contract, each participant shares in unit costs and production of petroleum in proportion to the acre-feet of commercially productive formations (zones) underlying its surface lands.

The engineering firm of Netherland, Sewell & Associates, Inc., of Dallas, Texas has been selected to provide an independent evaluation and recommendations on final equity for the Elk Hills field as required by Pub. L. 104-106. The recommendations will be considered by the Secretary in determining the respective ownership percentages of the Department and Chevron for the shared producing zones at Elk Hills.

The parties' equity shares of the producing zones within the Elk Hills unit are presently as follows:¹

¹ A small amount of additional production comes from the 100 percent Government-owned Asphalto Field, a part of Naval Petroleum Reserve No. 1, but not unitized under the Unit Plan Contract.

Zone	Percentage Share	
	Government	Chevron U.S.A.
Dry Gas	83.8726	16.1274
Shallow Oil	70.0119	29.9881
Stevens	79.6357	20.3643
Carneros	100.0000	0.0000

The Government's share of total oil unit production from Naval Petroleum Reserve No. 1 averages 78 percent.

Field development and daily operations in fiscal year 1996 were performed by Bechtel Petroleum Operations, Inc. under a management and operating contract that became effective August 1, 1985, and has been extended through September 30, 1997.

PRODUCTION AND RESERVES

Naval Petroleum Reserve No. 1 reached its peak rate of production (181,000 barrels of oil per day) in July 1981. In October 1996, it was producing approximately 59,000 barrels of oil per day. Daily production for fiscal year 1996 averaged 59,771 barrels of oil, of which the Government's share was 46,153 barrels. Most of the total production, 43,813 barrels of oil per day, was of an average gravity of approximately 35° (by American Petroleum Institute standards) produced from multiple reservoirs in the Stevens Zone. Shallow Oil Zone production averaged 15,646 barrels of oil per day with an average gravity of approximately 25° API. Small amounts of high-quality oil were also produced from the Asphalto Field and from the Carneros Zone of the Elk Hills Field. Production data for crude oil, natural gas, and associated liquids are provided in Table 1.

Since the establishment of the reserve in 1912, more than 1 billion barrels of crude oil have been produced at Elk Hills, 806 million barrels of which have been produced since July 3, 1976. Total proved reserves remaining at the end of fiscal year 1996 are estimated to exceed 478 million barrels of oil equivalent.

Table 1
Naval Petroleum Reserve No. 1
Total Production by Zone and Owner During Fiscal Year 1996

Zone	Crude oil		Natural gas and associated liquids				
	Barrels per day	FY 1996 total	Natural gas (thousands of cubic feet)	Propane (gallons)	Butane (gallons)	Isobutane (gallons)	Natural Gasoline (gallons)
Stevens							
Government	34,890	12,769,596	98,345,167	45,119,032	27,870,705	8,246,159	40,683,516
Chevron	8,922	3,265,418	25,148,652	11,537,759	7,127,047	2,108,693	10,403,516
Shallow Oil							
Government	10,954	4,009,314	2,552,261	1,166,257	1,096,459	304,668	3,223,571
Chevron	4,692	1,717,305	1,093,206	499,541	469,645	130,498	1,380,748
Carneros							
Government	66	24,013	1,378,536	594,777	468,962	150,415	1,228,616
Dry Gas							
Government	0	0	1,822,886	0	0	0	0
Chevron			542,987				
Asphalto Field							
Government	248	90,600	269,868	138,230	139,027	40,431	220,848
Tulare							
Government	0	0	0	0	0	0	0
Total							
Government	46,157	16,893,523	104,368,718	47,018,296	29,575,153	8,741,673	45,356,551
Chevron	13,614	4,982,723	26,784,845	12,037,300	7,596,692	2,239,191	11,784,264
Grand total	59,771	21,876,246	131,153,563	59,055,596	37,171,845	10,980,864	57,140,815

DEVELOPMENT AND EXPLORATION

The Department initiated an aggressive exploratory program in early fiscal year 1995 to develop comprehensive strategies for finding new reserves through the use of 3-dimensional seismic techniques. A pilot area was selected and field work began in early fiscal year 1996. The seismic survey in the northwest Stevens Zone was completed in December 1996 and the processed data should be available in 1997.

During fiscal year 1996, 30 development wells were drilled at Naval Petroleum Reserve No. 1, for a total of 1,304 wells drilled since the inception of the development program in 1974. Sixteen of the 30 wells were drilled in the Stevens Zone, eight wells were drilled in the Shallow Oil Zone, and five step-out wells were

drilled in the Dry Gas Zone to help resolve equity. One exploratory well was drilled to the Carneros. One Stevens Zone well was horizontally drilled to the "N" Shale and vertical Well 566X-14Z was drilled to the Carneros Zone to help delineate these respective pools.

The successful and highly profitable horizontal drilling program continued in the 26R reservoir in 1996. Production from these wells is about 9,600 barrels per day, up from 8,000 barrels per day in 1995. Three horizontal wells were also drilled in the Shallow Oil Zone and two were drilled in the northwest Stevens A1-A2 reservoirs.

There were 91 Stevens Zone remedials completed in fiscal year 1996, with the majority in support of waterfloods, producer-to-water injector conversions, and artificial lift installations. Most of the 87 remedials

Table 2
Inventory of Completed Wells at Naval Petroleum Reserve No. 1
as of September 30, 1996

	Well status						
Field/zone	Producer/ supplier	Gas injection	Water injection	Disposal	Shut-in ¹	Abandoned	Total
UNIT							
Elk Hills							
Dry Gas	39	0	0	0	10	3	52
Shallow Oil	467	23	0	2	697	325	1,514
Olig	1	0	0	0	0	0	1
Stevens	393	19	110	0	331	13	866
N. Coles Levee	0	0	0	0	2	0	2
Carneros	6	0	0	0	8	1	15
Subtotal	906	42	110	2	1,048	342	2,450
Section 14B							
Shallow Oil	2	0	0	0	8	8	18
Unit Total	908	42	110	2	1,056	350	2,468
NONUNIT							
Tulare	4	0	0	9	20	7	40
Dry Gas Zone	0	0	0	0	5	0	5
Asphalto	6	0	0	0	7	0	13
Olig	0	0	0	2	1	0	3
Railroad Gap	4	0	0	0	6	0	10
Oceanic	0	0	0	0	1	0	1
SOZ	0	0	0	0	0	1	1
Stevens	0	0	0	0	2	1	3
Nonunit Total	14	0	0	11	42	9	76
Total	922	42	110	13	1,098	359	2,544

¹Awaiting remedial work or uneconomic to produce.

¹Awaiting remedial work or uneconomic to produce.

completed in the Shallow Oil Zone were liner replacements or re-perforations.

As of the end of fiscal year 1996, 2,544 wells had been drilled in the Naval Petroleum Reserve No. 1. Of these, 1,087 wells were classified as active producers or injectors, 1,098 are shut-in awaiting remedial work or because of non-economic production, and 359 were abandoned (see Table 2).

Low pressure gas injection into the eastern portion of the Shallow Oil Zone reservoirs has been completely phased in. The gas injection is a large part of the reservoir management strategy, which will increase the reservoir pressure to approximately 45 pounds per square inch-gauge (psig) for production enhancement.

Production from the Shallow Oil Zone maintained an average of 15,646 barrels of oil per day through fiscal year 1996. Production at the end of 1996 had increased by 7 percent since the beginning of the year.

FACILITIES AND CONSTRUCTION

Thirty-five projects were completed in fiscal year 1996 at a cost of \$9.1 million. The projects ranged in cost from \$28,000 to \$1 million and included work to improve the separation and handling of oil, water, natural gas, and natural gas liquids. A few important projects completed or nearing completion during this period are described below:

LTS Control Building Modifications (\$1,076,000)—

New control buildings were constructed at each of the Low Temperature Separation (LTS) gas processing plants with modern technology and safety features. State-of-the-art computer process controls and safety enhancements were included in the design of the new buildings to comply with National Fire Protection Association and American Petroleum Institute safety codes and standards.

Produced Water Injection Enhancements (\$1,050,000)—

A WEMCO flotation cell was installed upstream of the Produced Water Injection (PWI) filtration system to remove suspended oil and solids prior to final filtration. Construction of this facility, completed in fiscal year 1997, helped alleviate operational problems experienced for several years with the Tulare source water and disposal systems. Approximately 43,000 barrels per day of filtered Stevens water is injected back into the Stevens 24Z and 17R Reservoirs.

Stevens Tank Settings Modifications (\$885,000)—

Three Stevens tank settings, 1-25R, 4-31S and 3-8R, were modified to replace or repair undersized piping, gas scrubber vessels, tanks, and leaking valves. Fluid restrictions were also reduced, which increased hydrocarbon production with the other tank setting modifications. Based on forecasted production rates and well production inflow performance, the modifications had a payout in less than 6 months with a rate of return greater than 1,000 percent and a net present value of \$8.2 million (at a 10 percent discount rate).

Sump Netting and Disposal Well Improvements (\$772,000)—

Four Shallow Oil Zone sumps were excavated and dredged in Section 10G to improve percolation of produced waste water and were netted to protect wildlife from coming into contact with produced water. Injection pumps and bag type filter vessels were installed at each of two new Shallow Oil Zone disposal wells to improve well injectivity of the produced waste water.

REVENUES AND EXPENDITURES

The Government's sales and other revenues associated with Naval Petroleum Reserve No. 1 totaled \$425,413,000 for fiscal year 1996 and were deposited in the Miscellaneous Receipts account at the U.S. Treasury pursuant to the Omnibus Consolidated Rescissions and Appropriations Act, 1996 (Pub. L. 104-131) of April 24, 1996. This amount includes \$28,078,000 in payments from Chevron for its share of development and operating expenses. An accounting of revenues from petroleum product sales for the last 20 years appears in the appendix, page A-8 and pages A-10 to A-20.

During fiscal year 1996, costs at Naval Petroleum Reserve No. 1 totaled \$144,811,573. The majority of the costs, \$134,603,573, were incurred for field development and operations under the Bechtel Petroleum Operations, Inc., contract, including \$91,642,308, for operations and maintenance, \$29,557,465 for development drilling, \$5,658,558 for exploratory drilling, and \$7,745,242 for facilities. The remainder included \$4,284,000 for salaries and support of the Government employees at Elk Hills and \$5,924,000 for miscellaneous contracts. Net income for the period totaled \$280,601,000.

SALES

In fiscal year 1996, the Department of Energy sold the Government's share of Naval Petroleum Reserve No. 1 crude oil under solicitations offering two 6-month contracts (see Tables 3 and 4) and six 2-month contracts (see Tables 5 through 10). In its increased marketing efforts, the Department issued solicitations for 6-month deliveries using the average price of local San Joaquin Valley posters as the price index, and for 2-month deliveries using the New York Mercantile Exchange (NYMEX) price for West Texas Intermediate (WTI) crude oil as the price index. The Department

Table 3
Naval Petroleum Reserve No. 1 Crude Oil Sales, Fiscal Year 1996
October 1, 1995, to April 1, 1996
Offering of 27,800 Barrels of Oil per Day

Company	Quantity delivered (barrels per day)		Average price billed (per barrel)
	Shallow Oil Zone	Stevens Zone	
Bravo Energy Trading, N.A.	2,152	1,258	\$ 15.73 16.68
Celeron Gathering Corporation	783	4,873	15.22 16.96
Celeron Trading & Transportation Company		3,904	16.72
EOTT Energy Operating Limited Partnership	1,956	3,240	15.30 16.97
Kern Oil & Refining Company	489	4,873	15.28 16.69
Koch Oil Company		3,898	17.14
Lunday Thagard Company		195	16.69
Paramount Petroleum Corporation		1,949	16.80
Solvent, Inc.	1,956	974	15.58 16.97
Texaco Refining & Marketing, Inc.	3,423		15.31
U.S. Oil & Refining Company		1,949	17.00
Total actual deliveries (barrels/day)	10,759	27,113	
Average sales price (\$/barrel) based on actual deliveries	\$ 15.43	\$ 16.88	

NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices.
Small refiners awarded 25 percent of deliveries.

awarded 11 contracts for the first 6-month period (October 1, 1995 to April 1, 1996) totaling 27,800 barrels of oil per day of Shallow Oil Zone crude at an average price of \$16.88 per barrel and 11,000 barrels of oil per day of Shallow Oil Zone crude at an average price of \$15.43 per barrel. Subsequently, the Department awarded 10 contracts for the second 6-month period, April 1, 1996 to October 1, 1996, totaling 23,900 barrels of oil per day of Stevens Zone crude at an average price of \$20.50 per barrel and 11,500 barrels of oil per day of Shallow Zone crude at an average price of \$18.32 per barrel. For the sales tied to the WTI price

index, the Department awarded contracts with 2-month delivery cycles as set forth in the referenced tables. The quantities offered under these solicitations varied from 8,800 to 12,000 barrels of oil per day. The total average price for fiscal year 1996 for the contracts awarded using the WTI index was \$18.27 per barrel. The expansion of crude oil sales to a two-price index portfolio has created a hedge against local price fluctuations while allowing purchasers an opportunity to trade crude oil with a price tied to a globally recognized index, the NYMEX WTI price format.

Table 4
Naval Petroleum Reserve No. 1 Crude Oil Sales, Fiscal Year 1996
April 1, 1996, to October 1, 1996
Offering of 23,900 Barrels of Oil per Day

Company	Quantity delivered (barrels per day)		Average price billed (per barrel)
	Shallow Oil Zone	Stevens Zone	
Bravo Energy Trading N.A.	3,055	2,030	\$ 18.40 20.63
Celeron Gathering Corporation		4,042	20.44
Celeron Trading & Transportation		722	20.33
EOTT Energy Operating Limited Partnership		962	20.42
Kern Oil and Refining Company	1,971	2,887	18.25 20.30
Koch Oil Company		6,759	20.68
Paramount Oil Corporation		1,780	20.38
Solvent, Inc.	1,971	1,925	18.43 20.43
Texaco Refining & Marketing, Inc.	4,336		18.24
U.S. Oil & Refining Company		1,925	20.33
Total actual deliveries (barrels/day)	11,333	23,032	
Average sales price (\$/barrel) based on actual deliveries	\$ 18.32	\$ 20.50	

NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices.
Small refiners awarded 25 percent of deliveries.

Table 5
Naval Petroleum Reserve No. 1 Crude Oil Sales, Fiscal Year 1996
October 1, 1995, to December 1, 1995
Offering of 10,000 Barrels of Oil per Day

Company	Quantity delivered (barrels per day)	Average price billed (per barrel)
Celeron Gathering Corporation	1,935	\$ 16.10
Koch Oil Company	968	15.80
Paramount Petroleum Corporation	966	16.16
Texaco Refining & Marketing, Inc.	2,891	16.45
Texaco Trading & Transportation, Inc.	2,891	16.20
Total actual deliveries (barrels/day)	9,651	
Average sales price (\$/barrel) based on actual deliveries		\$ 15.43

NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices.
Small refiners awarded 25 percent of deliveries.

Table 6
Naval Petroleum Reserve No. 1 Crude Oil Sales, Fiscal Year 1996
December 1, 1995, to February 1, 1996
Offering of 8,800 Barrels of Oil per Day

Company	Quantity delivered (barrels per day)	Average price billed (per barrel)
Celeron Trading & Transportation Company	1,791	\$ 16.35
Kern Oil & Refining Company	997	16.24
Texaco Refining & Marketing, Inc.	2,486	16.40
Texaco Trading & Transportation, Inc.	2,297	16.70
U.S. Oil & Refining Company	1,195	16.39
Total actual deliveries (barrels/day)	8,766	
Average sales price (\$/barrel) based on actual deliveries		\$ 16.45

NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices.
Small refiners awarded 25 percent of deliveries.

Table 7
Naval Petroleum Reserve No. 1 Crude Oil Sales, Fiscal Year 1996
February 1, 1996, to April 1, 1996
Offering of 10,000 Barrels of Oil per Day

Company	Quantity delivered (barrels per day)	Average price billed (per barrel)
Celeron Gathering Corporation	2,112	\$ 16.60
Celeron Trading & Transportation	2,256	16.75
Paramount Petroleum Corporation	479	16.29
Texaco Refining & Marketing, Inc.	2,833	16.42
U.S. Oil & Refining Company	1,920	16.21
Total actual deliveries (barrels/day)	9,600	
Average sales price (\$/barrel) based on actual deliveries		\$ 16.49

NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices.
Small refiners awarded 25 percent of deliveries.

Table 8
Naval Petroleum Reserve No. 1 Crude Oil Sales, Fiscal Year 1996
April 1, 1996, to June 1, 1996
Offering of 12,000 Barrels of Oil per Day

Company	Quantity delivered (barrels per day)	Average price billed (per barrel)
Celeron Trading & Transportation Company	6,389	\$ 20.91
Paramount Petroleum Corporation	1,947	20.88
Texaco Refining & Marketing, Inc.	2,377	20.84
U.S. Oil & Refining Company	974	20.83
Total actual deliveries (barrels/day)	11,687	
Average sales price (\$/barrel) based on actual deliveries		\$ 20.89

NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices.
Small refiners awarded 25 percent of deliveries.

Table 9
Naval Petroleum Reserve No. 1 Crude Oil Sales, Fiscal Year 1996
June 1, 1996, to August 1, 1996
Offering of 12,000 Barrels of Oil per Day

Company	Quantity delivered (barrels per day)	Average price billed (per barrel)
Celeron Trading & Transportation Company	6,204	\$ 18.98
Kern Oil & Refining Company	464	18.95
Texaco Refining & Marketing, Inc.	1,701	18.98
Texaco Trading & Transportation, Inc.	1,859	19.01
U.S. Oil and Refining Company	932	18.95
Total actual deliveries (barrels/day)	11,160	
Average sales price (\$/barrel) based on actual deliveries		\$ 18.98

NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices.
Small refiners awarded 25 percent of deliveries.

The Department sold natural gas from Naval Petroleum Reserve No. 1 through competitive bidding in 2-month cycles; consequently, there were six offerings during fiscal year 1996. Tables 11 through 17 show the quantities delivered to customers, and prices paid for natural gas during fiscal year 1996. Approximately 18 percent of the Government's share of natural gas from Naval Petroleum Reserve No. 1 is sold. The re-

mainder is either reinjected to maintain reservoir pressure, used in field operations, or lost to shrinkage after removal of the natural gas liquids.

Natural gasoline was sold on a 6-month basis; consequently, there were two offerings of natural gasoline for fiscal year 1996, as displayed in Tables 18 and 19.

Table 10
Naval Petroleum Reserve No. 1 Crude Oil Sales, Fiscal Year 1996
August 1, 1996, to October 1, 1996
Offering of 10,300 Barrels of Oil per Day

Company	Quantity delivered (barrels per day)	Average price billed (per barrel)
Celeron Gathering Corporation	1,476	\$ 19.83
EOTT Operating Limited Partnership	711	19.63
Paramount Petroleum Corporation	1,966	19.34
Celeron Trading & Transportation	1,474	19.97
Texaco Refining & Marketing	1,965	19.95
Texaco Trading & Transportation	1,965	19.75
U.S. Oil & Refining	566	19.54
Total actual deliveries (barrels/day)	10,123	
Average sales price (\$/barrel) based on actual deliveries		\$ 19.73

NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices.
Small refiners awarded 25 percent of deliveries.

Table 11
Naval Petroleum Reserve No. 1 Natural Gas Sales, Fiscal Year 1996
October 1, 1995, to October 1, 1996
Offering of 60,000 Million British Thermal Units (MMBtu) of Natural Gas per Day

Company	Quantity delivered (MMBtu/day)	Average price billed (per MMBtu)
Coastal Gas Marketing Company	20,000	\$ 1.49
Enron Capital & Trade Resources	40,000	1.48
Total actual deliveries (MMBtu/day)	20,000	
Average sales price (\$/MMBtu) based on actual deliveries		\$ 1.49

NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices.
Small refiners awarded 25 percent of deliveries.

Table 12 Naval Petroleum Reserve No. 1 Natural Gas Sales, Fiscal Year 1996 November 1, 1995, to December 31, 1995 Offering of 55,000 Million British Thermal Units (MMBtu) of Natural Gas per Day		
Company	Quantity delivered (MMBtu/day)	Average price billed (per MMBtu)
Coastal Gas Marketing Company	38,988	\$ 1.57
Valero Gas Marketing, L. P.	22,279	1.57
Total actual deliveries (MMBtu/day)	61,267	
Average sales Price (\$/MMBtu) based on actual deliveries		\$ 1.57
NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices. All deliveries from 24Z location.		

Table 13 Naval Petroleum Reserve No. 1 Natural Gas Sales, Fiscal Year 1996 January 1, 1996, to February 29, 1996 Offering of 62,000 Million British Thermal Units (MMBtu) of Natural Gas per Day		
Company	Quantity delivered (MMBtu/day)	Average price billed (per MMBtu)
Coastal Gas Marketing Company	62,000	\$ 1.45
Total actual deliveries (MMBtu/day)	62,000	
Average sales price (\$/MMBtu) based on actual deliveries		\$ 1.45
NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices. All deliveries from 24Z location.		

Table 14 Naval Petroleum Reserve No. 1 Natural Gas Sales, Fiscal Year 1996 March 1, 1996, to April 30, 1996 Offering of 60,700 Million British Thermal Units (MMBtu) of Natural Gas per Day		
Company	Quantity delivered (MMBtu/day)	Average price billed (per MMBtu)
Coastal Gas Marketing Company	63,567	\$ 1.34
Total actual deliveries (MMBtu/day)	63,567	
Average sales price (\$/MMBtu) based on actual deliveries		\$ 1.34
NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices. All deliveries from 24Z location.		

Table 15 Naval Petroleum Reserve No. 1 Natural Gas Sales, Fiscal Year 1996 May 1, 1996, to June 30, 1996 Offering of 62,500 Million British Thermal Units (MMBtu) of Natural Gas per Day		
Company	Quantity delivered (MMBtu/day)	Average price billed (per MMBtu)
Coastal Gas Marketing Company	64,025	\$ 1.33
Total actual deliveries (MMBtu/day)	64,025	
Average sales price (\$/MMBtu) based on actual deliveries		\$ 1.33
NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices. All deliveries from 24Z location.		

Table 16 Naval Petroleum Reserve No. 1 Natural Gas Sales, Fiscal Year 1996 July 1, 1996, to August 31, 1996 Offering of 60,000 Million British Thermal Units (MMBtu) of Natural Gas per Day		
Company	Quantity delivered (MMBtu/day)	Average price billed (per MMBtu)
Coastal Gas Marketing Company	22,683	\$ 1.93
Valero Gas Marketing, L. P.	45,366	1.93
Total actual deliveries (MMBtu/day)	68,049	
Average sales price (\$/MMBtu) based on actual deliveries		\$ 1.93
NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices. All deliveries from 24Z location.		

Table 17 Naval Petroleum Reserve No. 1 Natural Gas Sales, Fiscal Year 1996 September 1, 1996, to October 1, 1996 Offering of 77,800 Million British Thermal Units (MMBtu) of Natural Gas per Day		
Company	Quantity delivered (MMBtu/day)	Average price billed (per MMBtu)
Coastal Gas Marketing Company	19,892	\$ 1.73
Valero Gas Marketing, L. P.	67,051	1.73
Total actual deliveries (MMBtu/day)	86,943	
Average sales price (\$/MMBtu) based on actual deliveries		\$ 1.73
NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices. All deliveries from 24Z location.		

Table 18
Naval Petroleum Reserve No. 1 Natural Gasoline Sales, Fiscal Year 1996
October 1, 1995, to April 1, 1996
Offering of 109,000 Gallons of Natural Gasoline per Day

Company	Quantity delivered (gallons/day)	Average price billed (per gallon)
Koch Oil Company	87,445	\$ 0.35
Texaco Natural Gas, Inc.	13,036	0.37
Texaco Refining & Marketing, Inc.	13,127	0.38
Total actual deliveries (gallons/day)	113,608	
Average sales price (\$/gallon) based on actual deliveries		\$ 0.35
NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices. All deliveries from 35R location.		

Table 19
Naval Petroleum Reserve No. 1 Natural Gasoline Sales, Fiscal Year 1996
April 1, 1996, to October 1, 1996
Offering of 145,000 Gallons of Natural Gasoline per Day

Company	Quantity delivered (gallons/day)	Average price billed (per gallon)
Koch Oil Company	37,299	\$ 0.43
Texaco Natural Gas, Inc.	39,034	0.45
Texaco Refining & Marketing, Inc.	58,562	0.46
Total actual deliveries (gallons/day)	134,895	
Average sales price (\$/gallon) based on actual deliveries		\$ 0.43
NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices. All deliveries from 35R location.		

During fiscal year 1996, the Department sold propane, butane, and isobutane liquid products for a full year in one offering from October 1, 1995 through September 30, 1996. Table 20 summarizes the liquid product sales for fiscal year 1996.

ENVIRONMENT

Environmental activities at Naval Petroleum Reserve No. 1 in fiscal year 1996 continued to focus on compliance with applicable Department of Energy Orders and with Federal, State, and local environmental regulations, including wildlife and habitat management. Assessments performed by both internal and external

organizations validated the high level of compliance achieved.

Environmental costs were reduced significantly by incorporating risk-based planning and budgeting, as well as focusing on performance-based goals and objectives that were developed through an integrated management approach. Examples of cost-effective initiatives that have been approved by State and/or local regulators include Naval Petroleum Reserve No. 1's Cultural Resources Management Plan, the environmental remediation and closure of unused sumps and catch basins, and naturally occurring radiological materials (NORM) and waste minimization plans.

Table 20
Naval Petroleum Reserve No. 1 Liquid Product Sales, Fiscal Year 1996
October 1, 1995, to September 30, 1996
Offering Gallons per Day of Propane (123,000), Butane (78,900), and Isobutane (23,500)

Company	Quantity delivered (gallons/day)			Average price billed (\$/gallon)
	Propane	Butane	Isobutane	
Lone Star Gas Liquids Processing, Inc.	10,267			0.40
Suburban Propane	116,158			0.40
Ultramar, Inc.		80,853	23,653	0.33 0.50
Total actual deliveries (gallons/day)	126,425	80,853	23,653	
Average sales price (\$/gallon) based on actual deliveries	\$ 0.40	\$ 0.33	\$ 0.50	
NOTES: Billing prices are adjusted monthly to reflect changes in spot market prices. All deliveries from 35R location.				

Air Pollution Emissions

Work continued in fiscal year 1996 to develop strategies for negotiating terms for compliance with the San Joaquin Valley Unified Air Pollution Control District's proposed Rules 4701 and 4501. Rule 4701 is aimed at further reducing nitrous oxide emissions from internal combustion engine sources through the use of best available retrofit control technology (BARCT), excluding electrification. The purpose of Rule 4501 is to implement a new California law that requires regulatory agencies to take cost effectiveness into account in the course of all rule-making. Naval Petroleum Reserve No. 1 has requested District officials to defer compliance with Rule 4701 until Rule 4501 is in place, and to include the option of electrification as a means to comply with Rule 4701. Work will continue to identify potential alternative technology to satisfy these requirements.

For several years Naval Petroleum Reserve No. 1 has been accumulating California Emission Reduction Credits (CERC). Companies may accumulate one credit for each pound per day of pollutant emission eliminated by mechanical means. Naval Petroleum Reserve No. 1 emission reductions have resulted in the accumulation of more than 11,400 pounds per day for nitrous oxide (NOx) and 3,700 pounds per day for volatile organic compounds (VOC). Accumulating these credits is a result of action to retrofit existing pollution-emitting equipment and to design new con-

struction with the best available air pollution reduction equipment.

Wildlife and Habitat Management/ Endangered Species Program

Through fiscal year 1996, Naval Petroleum Reserve No. 1 maintained its comprehensive endangered species program, which encompasses research and various techniques for the conservation and protection of endangered and threatened species while allowing for the continued production of hydrocarbons. The San Joaquin kit fox, Tipton kangaroo rat, blunt-nosed leopard lizard, and Hoover's wooley-star are all endangered or threatened species found on Federal lands at the Naval Petroleum Reserves in California. Activities in fiscal year 1996 included the following:

- Pre-activity surveys were conducted for 1,595 potential habitat-disturbing projects prior to any field construction, operation, or maintenance activities. The program continued to ensure that all conflicts regarding endangered species habitats were resolved effectively with maximum protection of all endangered species. The increased number of preactivity surveys since fiscal year 1995 is a result of extensive road maintenance and wash-out repair projects conducted during fiscal year 1996. Most of these activities occurred in previously disturbed and/or lower-quality endangered species habitats.

- A survey to determine the presence or absence of special status plants was completed on 1,600 acres of Naval Petroleum Reserve No. 1 during the spring.
- Negotiations with the U.S. Fish and Wildlife Service were completed for a biological opinion on whether the continued operation of Naval Petroleum Reserve No. 1 would affect wildlife. A final nonjeopardy biological opinion was issued by the U.S. Fish and Wildlife Service on November 8, 1995.

Educational and Outreach Programs

The Naval Petroleum Reserves in California have a very active outreach program. Archeologists and student assistants from California State University in Bakersfield participated in the 3-D Seismic survey. Local teachers have accompanied Government biologists during trapping sessions so that they can view, and at times even handle, some of the unique animals in the San Joaquin Valley that are located at Naval Petroleum Reserves in California. Endangered species and cultural resources classroom presentations provided a means to share research data with local school children. The preserved specimens that are shown to the students often are the children's first encounter with endangered species. Some specimens have been donated to community science and industry museums. Naval Petroleum Reserves in California also joined with the ARCO Western Energy staff in conducting field tours of the Coles Levee Ecosystem Preserve. These outreach efforts provide an excellent educational opportunity and foster an appreciation of Naval Petroleum Reserves in California's efforts to conserve endangered species and cultural resources. In addition, Naval Petroleum Reserve No. 1 continues to host the Endangered Species Advisory Committee (ESAC), a group of State, county, and local advocates of effective research and management initiatives geared toward compliance with the Endangered Species Act.

The Naval Petroleum Reserves in California's endangered species program was recognized with a Regional Award of Merit for Environmental Resources and Conservation by the Kern Council of Governments. This is the second consecutive year that the Naval

Petroleum Reserves in California have been recognized for taking a leadership role in promoting conservation of resources in the community.

National Environmental Policy Act (NEPA) Compliance

The Naval Petroleum Reserves in California, in coordination with Department of Energy Headquarters, streamlined the NEPA compliance process in fiscal year 1996, making it more efficient and cost effective. In addition to monitoring compliance with the terms and analyses contained in the 1976 Naval Petroleum Reserve No. 1 Environmental Impact Statement (EIS), all Federal project proposals at Naval Petroleum Reserve No. 1 were subjected to NEPA review to determine if an Environmental Assessment or a Categorical Exclusion would be required. In a collaborative effort with the Bureau of Land Management, a joint Environmental Assessment (EA) was prepared for a 3-D seismic project to be conducted on the western portions of Naval Petroleum Reserve No. 1. Naval Petroleum Reserve No. 1 personnel have also been very active in developing a Supplemental Environmental Impact Statement for the proposed divestment of the Government's interest in the Elk Hills field, including participating in several public hearings.

SAFETY AND HEALTH

In a climate of reduced budgets in fiscal year 1996, Naval Petroleum Reserve No.1 reduced its safety and health costs significantly while achieving an outstanding safety and health record for workers and the public. The Safety and Health Program at Naval Petroleum Reserve No. 1 in fiscal year 1996 focused on the following areas:

- Development of a computerized database to track safety inspection progress. The database allows for the periodic review and assessment of inspection performance to ensure that recommendations are assigned, addressed, and followed to closure.
- Completion of the implementation of the Safe Work Observation Program (SWOP). The customized Elk Hills program, called POWER

(People Observing Work for Employee Risk Reduction), commenced observations in the field during July 1996.

- An annual Emergency Response Exercise was held, which involved a mock anhydrous ammonia leak. Local emergency response agencies and organizations participated in the drill.
- The Tiger Team assessment conducted between November 12 and December 13, 1991 determined compliance levels with the Department of Energy's Orders and Occupational Safety and Health Administration standards. Naval Petroleum Reserve No. 1 has completed the majority of the corrective actions recommended in the final Tiger Team report. During fiscal year 1996, Naval Petroleum Reserve No. 1 completed action on 12 more findings, closing out 204 of 245 findings.

LITIGATION

- Appeals of *Beacon Oil Company* (EBCA Nos. 215-6-82, and 345-12-85). A Naval Petroleum Reserve No. 1 crude oil purchaser filed two claims before the Energy Board of Contract Appeals during fiscal year 1985 seeking recovery of alleged overcharges under its 1978 and 1979 contracts. The Board initially dismissed the appeals, but after a lengthy appeals process, the U.S. Court of Appeals for the Federal Circuit vacated those decisions. Pursuant to a subsequent Energy Board of Contract Appeals order, Beacon filed two complaints on May 31, 1988, claiming approximately \$1.3 million. The Board denied Beacon's motion for partial summary judgment on the issue of timeliness in June 1990 and denied Beacon's motion for reconsideration in July 1990. The parties settled the 1978 contract claim in fiscal year 1991. On August 23, 1994, the Board granted the Department of Energy's motion for summary judgment on the 1979 contract claim. In a decision issued December 4, 1995, the Federal Circuit reversed the Board's summary judgment and remanded the case to the Board for trial.²
- Appeals of *Golden West Refining Co., Kern Oil & Refining Co., Lunday Thagard Co., and Sunland Refining Corp.* (EBCA Nos. C-9208134 through C-9208137, respectively). These appellants filed virtually identical contract claims alleging that the Department of Energy wrongfully extended their contracts to purchase Naval Petroleum Reserve No. 1 crude oil for 30 days beyond their April 1, 1992, expiration date, and that as a result the appellants incurred damages totaling in excess of \$860,000. The Department of Energy contracting officer denied the four claims, and appellants appealed those decisions to the Energy Board of Contract Appeals. On August 24, 1994, the Board granted appellants' motion for summary judgment on entitlement and on August 31, 1995, directed the Department to pay damages totaling \$666,738.59 plus interest. On February 28, 1996, the Federal Circuit dismissed as untimely an appeal filed on behalf of the Secretary of Energy by the Department of Justice.
- *Celeron v. United States*, U.S. Court of Federal Claims No. 93-260 C. In October 1988, Celeron Gathering Corporation contracted to buy Naval Petroleum Reserve No. 1 crude oil from a delivery site at the 24Z sales point. The Department of Energy underdelivered to Celeron at 24Z due to wastewater disposal problems. Later in the contract term and after crude oil prices had risen, Celeron requested and the Department of Energy delivered oil at 18G to make up for 24Z underdeliveries. Celeron submitted a claim for \$1,126,000, the difference between the purchase price at the time of initial delivery and the price Celeron paid for the crude that was later delivered at 18G. The Department of Energy denied Celeron's claim and Celeron sued the Department in Federal Claims Court. The court heard oral arguments on the parties' cross motions for summary judgment but denied these motions in September 1994. A trial was held in May 1995, followed by unsuccessful settlement negotiations. In February 1996, the court ruled for Celeron, awarding it \$430,000 plus interest.

² The trial took place in mid-March 1997 and the Department now awaits the Board's decision.

NAVAL PETROLEUM RESERVE NO. 2

Naval Petroleum Reserve No. 2, Buena Vista Hills, California covers 30,181 acres adjacent to and south of Naval Petroleum Reserve No. 1. Crude oil has been produced from the Buena Vista Hills field continuously since the early 1920s. The Government owns 10,466 acres (approximately 35 percent) of Naval Petroleum Reserve No. 2; the remainder is privately owned. All of the Government's productive land (9,224 acres) has been leased in 17 separate parcels that "checkerboard" Naval Petroleum Reserve No. 2. All Naval Petroleum Reserve No. 2 development and production operations are performed by the lessees, with the Government receiving royalties for production derived from these leases.

EXPLORATION

There was no exploration drilling during fiscal year 1996.

PRODUCTION

Total Naval Petroleum Reserve No. 2 production, predominantly from stripper wells, averaged 2,591 barrels of oil per day during fiscal year 1996. The Government's royalty share of oil averaged 169 barrels per day. More than 652 million barrels of oil have been produced from Naval Petroleum Reserve No. 2 from the early 1920s through fiscal year 1996. Total remaining recoverable reserves at Naval Petroleum Reserve No. 2 are estimated at 4 million barrels (Table 21). Table 22 lists the quantities of crude oil, natural gas, and associated liquids produced and sold from Government leases on Naval Petroleum Reserve No. 2 during fiscal year 1996.

REVENUES AND EXPENDITURES

The Government's royalty revenues from Naval Petroleum Reserve No. 2 during fiscal year 1996 totaled \$1,383,593. A breakdown of revenue by product appears in the appendix, pages A-10 through A-20.

Nominal expenses associated with the Naval Petroleum Reserve No. 2 operations in fiscal year 1996 include costs for lease surveillance, production accounting, and oversight.

ENVIRONMENT

The Department of Energy's environmental activities at Naval Petroleum Reserve No. 2 in fiscal year 1996 continued to include endangered species research and protection, habitat reclamation, cultural resource protection, Department of Energy environmental survey corrective actions, general environmental inspections and surveys, National Environmental Policy Act documentation, and Endangered Species Act section 7 compliance activities. The National Environmental Policy Act Program ensured appropriate project analysis and documentation for Categorical Exclusions and Environmental Assessments on all exploration and development proposals from the Department of Energy and oil and gas lessees.

In fiscal year 1996, staff at the Naval Petroleum Reserves in California continued to provide support for the development of a joint agency Environmental Assessment for the 1997-2001 Curley-top Virus Control Program. The document is being prepared by the Bureau of Land Management as lead Federal agency, with the Department of Energy acting in the capacity of a cooperating Federal agency. The Naval Petroleum Reserves in California also provided environmental expertise and support in the development of the congressionally mandated study on the future of Naval Petroleum Reserve No. 2, which is being prepared by Gustavson and Associates.

Work on an Environmental Assessment for the continued exploration, development, and operation of Naval Petroleum Reserve No. 2 was initiated in 1994. Completion of this document has been suspended pending the outcome of congressional action on the disposition of Naval Petroleum Reserve No. 2 pursuant to the requirements of Pub. L. 104-106.

Table 21
Naval Petroleum Reserve No. 2
Reserves and Cumulative and Annual Oil Production
Fiscal Year 1996

Pool/Unit	Cumulative production (barrels)	Remaining reserves (barrels)	Government lease reserves (barrels)	Total fiscal year 1996 production (barrels)	Government lease production (barrels)
27B Pool Unit	99,561,751	20,000	4,109	255	52
Antelope Shale Zone Unit	22,698,776	100,000	37,586	67,000	25,183
Antelope Shale Pool Nonunit	10,400,689	648,217	286,520	77,607	29,972
555 Stevens Pool Unit	50,943,066	500,000	385,951	240,969	186,005
Stevens Pool Nonunit	4,389,139	20,000	20,000	19,837	19,837
2-D Unit	464,222	20,000	6,534	6,860	2,241
11-D Unit	981,135	20,000	4,330	10,455	2,264
Shallow Pool	462,955,024	2,900,000	400,000	525,383	247,866
Total	652,393,802	4,228,217	1,145,031	948,366	513,420

Table 22
Naval Petroleum Reserve No. 2
Production and Royalty Data
Fiscal Year 1996

Zone	Oil (barrels)	Natural Gas (thousands of cubic feet)	Liquid products		
			Propane (gallons)	Natural gasoline (gallons)	Butane (gallons)
27-B Pool Unit					
Government Lease Sales	52	16,106	5,648	25,166	9,519
Royalty Rate (%)	13.5	12.5	5.6	5.6	5.6
Royalty Quantity	7	2,013	314	1,399	529
Antelope Shale Zone Unit					
Government Lease Sales	27,522	619,210	170,882	286,944	109,598
Royalty Rate (%)	14.0	14.0	4.7	7.9	4.7
Royalty Quantity	3,840	86,411	7,975	22,557	5,114
Antelope Shale Nonunit					
Government Lease Sales	25,771	183,380	35,890	103,692	35,908
Royalty Rate (%)	12.5	12.5	7.2	7.1	7.2
Royalty Quantity	3,221	22,923	2,587	7,370	2,576
555 Stevens Zone Unit					
Government Lease Sales	185,120	250,152			
Royalty Rate (%)	12.5	12.5			
Royalty Quantity	23,140	31,269			
Stevens Nonunit					
Government Lease Sales	19,313	31,653	12,581	76,187	17,634
Royalty Rate (%)	12.5	12.5	6.2	6.1	6.2
Royalty Quantity	2,414	3,957	774	4,622	1,090
2-D Unit					
Government Lease Sales	2,244				
Royalty Rate (%)	13.5				
Royalty Quantity	303				
11-D Unit					
Government Lease Sales	2,204				
Royalty Rate (%)	13.5				
Royalty Quantity	298				
Shallow Pool					
Government Lease Sales	230,841	848,807	129,098	457,569	37,555
Royalty Rate (%)	12.4	15.2	5.3	13.3	5.9
Royalty Quantity	28,692	128,634	6,800	60,798	2,200
Total					
Government lease sales	493,067	1,949,308	354,099	949,558	210,214
(Daily average)	1,347	5,326	967	2,594	574
Royalty quantity	61,915	275,207	18,450	96,746	11,509
(Daily average)	169	752	50	264	31

NAVAL PETROLEUM AND OIL SHALE RESERVES IN COLORADO, UTAH, AND WYOMING

PROGRAM SUPPORT

The Department of Energy's oversight and contractor management at the Naval Petroleum and Oil Shale Reserves in Colorado, Utah, and Wyoming supports three specific missions with distinct program objectives: (1) to produce at the maximum efficient rate at Naval Petroleum Reserve No. 3; (2) to protect the Government's natural gas resources at the Naval Oil Shale Reserves to mitigate drainage; and (3) to provide a testing and demonstration facility in support of the Department's Domestic Oil and Gas Initiative at the Rocky Mountain Oilfield Testing Center. The support functions (e.g., management, procurement, fi-

nance, and personnel) for all of these missions are maintained at an office in Casper, Wyoming, much as a large corporation would have an area office providing these functions.

Expenditures to support these various missions and objectives reflect the cost of the Federal on-site staff, referred to as program direction, and the cost of the management and operating contractor's general and administrative costs plus the fee paid under the cost-plus-award-fee contract. These expenditures were \$1,000,184 and \$2,124,704, respectively.

NAVAL PETROLEUM RESERVE NO. 3

Naval Petroleum Reserve No. 3, Teapot Dome, is a Federally owned oilfield of 9,481 acres located 35 miles north of Casper, Wyoming in Natrona County. In 1976, the Department of Energy initiated activities to bring this field into full production pursuant to the requirements of the Naval Petroleum Reserves Production Act of 1976 (Pub. L. 94-258). Prior activity at this oilfield included lease production in the 1920s and offset production from 1958 to 1976. Fluor Daniel (NPOS), Inc., currently serves as the management and operating contractor at Naval Petroleum Reserve No. 3.

PRODUCTION AND RESERVES

More than 586,000 barrels of oil were produced from Naval Petroleum Reserve No. 3 during fiscal year 1996 at an average rate of 1,601 barrels of oil per day. Approximately 26.5 million barrels of oil have been produced from Naval Petroleum Reserve No. 3 since the initiation of production at the reserve in 1922, including 19.1 million barrels since July 3, 1976, when the field was brought into full production status. The Shannon and the Second Wall Creek formations account for 58 percent of the total production. Successful drilling in the Tensleep Formation raised daily production by 418 barrels of oil per day (or 26 percent of the total). Oil produced from Naval Petroleum Reserve No. 3 is primarily a light, sweet (low sulfur) crude, except for the sour oil produced from the Tensleep. Table 23 shows production data by zone for crude oil, natural gas, and associated liquids.

Remaining recoverable reserves at Naval Petroleum Reserve No. 3 are estimated at 1.1 million barrels using current production techniques. Shannon reserves account for 680 thousand barrels through primary and thermal-enhanced oil recovery production techniques.

DEVELOPMENT AND EXPLORATION

In 1976, prior to initiating the Development and Exploration Program at Naval Petroleum Reserve No. 3, 233 wells had been drilled. Since that time, an additional 1,007 development wells and 90 exploratory wells have been drilled. Of the 1,007 development wells, 26 were drilled during fiscal year 1996. In fiscal year 1996, more emphasis was placed upon drilling wells targeting the Tensleep formation, and two Tensleep wells experienced initial production rates of 789 and 699 barrels of oil per day (the highest production rates of any wells in Wyoming at that time) and paid for their capital costs within three months.

A total of 1,330 wells have been drilled at Naval Petroleum Reserve No. 3 since it was created. At the end of fiscal year 1996, 627 wells were classified as active producers, injectors, or observation wells; 8 were water source wells or wells in the process of being drilled; 505 wells had been shut in (40 more than the 465 shut-in wells in fiscal year 1995); and 190 wells were plugged and abandoned (Table 24).

ENHANCED OIL RECOVERY

The Shannon reservoir is estimated to have originally contained 144 million barrels of oil, of which only 7 million barrels are estimated to be recoverable by primary means. Planning for enhanced oil recovery pilot projects began in fiscal year 1980 to determine the optimum recovery methods for Shannon oil. Pilot projects to test in-situ combustion and polymer-improved waterflood were implemented in the early 1980s and completed in fiscal year 1986. Favorable production responses to steam preheating in the in-

Table 23
Naval Petroleum Reserve No. 3 Production
Fiscal Year 1996

Zone	Crude oil (barrels/day)	Crude oil (total production in fiscal year 1996)	Natural gas (thousands of cubic feet)	Propane (gallons)	Butane-plus (gallons)
Shannon	809	296,093	10,972		
Steele Shale	118	43,220	23,850		
Niobrara Shale	109	39,825	0		
Second Wall Creek	125	45,924	2,116,659		
Third Wall Creek	15	5,507	1,930		
Muddy Sand	5	1,679	269,723		
Dakota	2	740	0		
Tensleep	418	153,117	0		
Total	1,601	586,105	2,423,134	614,224	2,005,677

¹ Data for propane and butane-plus production by zone are not available.

Table 24
Inventory of Wells, Naval Petroleum Reserve No. 3
as of September 30, 1996

Zone	Injector/ observer	Producer ¹	Enhanced oil recovery ²	Water source	Shut in	Plugged & abandoned	Drilling/ completing	Total
Shannon	33	224	191	0	237	52	1	738
Shales	0	94	0	0	59	29	1	183
Wall Creek	2	68	0	0	170	46	0	286
Muddy/Dakota/Lakota	1	6	0	0	15	8	0	30
Morrison	0	0	0	0	1	7	0	8
Tensleep	0	8	0	0	7	4	1	20
Madison ³	0	0	0	5	16	44	0	65
Total	36	400	191	5	505	190	3	1,330

¹ Includes intermittently producing wells.

² Includes enhanced oil recovery producers, injection wells, and observation wells.

³ Includes wells in the Crow Mountain Zone, potable water wells, and historical wells of unknown purposes.

situ combustion pilot led to the development of a steam drive pilot in October 1985, which operated with an increasingly favorable production response in fiscal years 1986 and 1987. Between fiscal years 1988 and 1993, the project was expanded as five steam generators were purchased and placed in service. The Shannon steamflood is believed to be the only fully developed light-oil steamflood operating in the United States.

During fiscal year 1996, the Shannon light-oil steamflood continued to generate significant revenues, even though this enhanced oil recovery project is mature and has provided decreasing returns in recent years. A low-cost capital project designed to increase recovery in non-steam-influenced areas involved drilling and converting existing producing wells into injection wells was initiated; it provided an excellent return on investment during fiscal year 1996. Produc-

tion from the steamflood during 1996 averaged 516 barrels of oil per day, or 32 percent of total field production.

REVENUES AND EXPENDITURES

Fiscal year 1996 revenues derived from all sources at Naval Petroleum Reserve No. 3 totaled \$12,446,868. These revenues were deposited in the Miscellaneous Receipts account at the U.S. Treasury. A breakdown of revenues by product for fiscal year 1996 appears in the appendix on page A-20. Expenditures at Naval Petroleum Reserve No. 3 totaled \$12,204,633. Of this total, operation and maintenance expenses comprised \$6,383,065; investment project costs, which increase reserves and have a payout longer than 1 year, comprised \$3,918,809; and allocated contractor overhead and program direction comprised the remaining \$1,902,759.

SALES

In fiscal year 1996, Naval Petroleum Reserve No. 3 sold its sweet crude oil at an average price of \$20.35

per barrel and sour crude oil at an average price of \$17.62 per barrel (Table 25). Due to field operating requirements, natural gas has not been sold since May 1, 1983; all gas that is produced is either reinjected into the underground formations or used as fuel in the steam generators which produce steam for enhanced oil recovery. Associated natural gas liquids sales averaged \$0.33 per gallon for propane and \$0.35 per gallon for butane-plus (Table 26). In fiscal year 1997, Naval Petroleum Reserve No. 3 will continue to produce at its maximum efficient rate, and all of the crude oil and natural gas liquids produced will be sold via competitive bidding.

ROCKY MOUNTAIN OILFIELD TESTING CENTER

In its second year of operation, the Rocky Mountain Oilfield Testing Center continued to serve the oil and gas industry as a testing, evaluation, and demonstration site for new petroleum technologies. The positive response received from the partners, industry associations, and governmental agencies in support of the Center's concept has provided the basis to pursue

Table 25
Naval Petroleum Reserve No. 3 Crude Oil Sales
Fiscal Year 1996

Company	Sweet (barrels/day)	Average billing price (\$/barrel)	Sour (barrels/day)	Average billing price (\$/barrel)
EOTT Energy Operating Ltd. Partnership October 1, 1995–November 30, 1995	1,399	\$ 18.00		
Sinclair Oil Corporation October 1, 1995–November 30, 1995			115	\$ 13.52
Sinclair Oil Corporation December 1, 1995–May 31, 1996	1,186	20.25		
J N Marketing December 1, 1995–May 31, 1996			501	17.31
Sinclair Oil Corporation June 1, 1996–September 30, 1996	1,128	21.99		
J N Marketing June 1, 1996–September 30, 1996			403	18.78
Average daily sales volume	1,202		404	
Average sales price (\$/barrel)		\$ 20.35		\$ 17.62

Table 26
Naval Petroleum Reserve No. 3 Liquid Product Sales (Deliveries)
Fiscal Year 1996

Company	Propane (gallons/day)	Average billing price* (\$/gallon)	Butane-plus (gallons/day)	Average billing price* (\$/gallon)
V1 Oil Company October 1, 1995–September 30, 1996	1,574	\$ 0.33		
Vessels Oil Company October 1, 1995–September 30, 1996			5,483	\$ 0.35
* Billing prices are adjusted monthly, based on relevant spot market prices.				

Table 27
Rocky Mountain Oilfield Testing Center External Funding Sources
Fiscal Year 1996

External funding source	Total amount of funding provided
Department of Energy Fossil Energy Research and Development	\$ 500,000
Industry	166,000
State of Wyoming	100,000
Subtotal	766,000
*In Kind Contributions - All Organizations	1,243,000
Total	\$ 2,009,000
* In Kind Contributions include the use of that particular company's resources (labor, equipment, procurement services, etc.) to obtain a well-planned agreement in the test of a project.	

additional and complementary operating missions for the Naval Petroleum Reserve No. 3. The ability to cost-share with partners provides an attractive incentive to test projects at the Center. As domestic oil companies and national laboratories continue to reduce staffing and budget levels in their research and development departments, a unique opportunity presents itself for the Center to contribute significantly to the domestic oil industry.

In addition to the testing and demonstration of newly developed technologies, the Center offers training courses in the petroleum and environmental sciences to university students and Native Americans desiring practical oilfield experience. One of the Center's highlights during fiscal year 1996 was a 10-week summer training program for university students. Six students attending historically Black colleges and universities and 11 undergraduate students from several other universities and colleges participated in the summer program. Funding for the participation of the Native Americans at this training program was provided by

the Department of Energy through its Bartlesville Project Office.

The Rocky Mountain Oilfield Testing Center was established to serve the industry and academic community. Two panels of industry advisors meet each year to ensure that these groups can participate in discussing the operations of the Center. The Focus Group is responsible for advising the Center on issues pertaining to management and business operations. The Technical Review Panel reviews the project proposals submitted to the Center and selects for testing those projects which appear to provide the most immediate benefit to the petroleum industry. Projects costing the Department more than \$25,000 to test are analyzed and approved by members of the Technical Review Panel, while projects costing less than this amount are reviewed and approved by site engineers. The panels include representatives from oil and gas companies, environmental businesses, industry trade associations, universities, national laboratories, State and Federal agencies, and the Testing Center. The transfer of tech-

nology acquired from project testing is a critical component of the Center's mission.

Several articles were published in national industry journals during fiscal year 1996. Several organizations contributed funding to support the testing of projects and to provide training for university students and Native Americans. Of note in this area is the State of Wyoming's Energy Office, which contributed \$100,000 to assist in the testing of technologies being advanced by Wyoming-based businesses. The Department of Energy's In-House Energy Management program and Energy-Related Inventions program were also significant supporters of the Center.

ENVIRONMENT, SAFETY, AND HEALTH

Environment

In fiscal year 1996 an environmental assessment was completed on the continued development of Naval Petroleum Reserve No. 3. A finding of No Significant Impact was recorded. Additional environmental work during fiscal year 1996 involved updating a number of reports and plans, including the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Program, the Pollution Prevention Awareness Plan, the Waste Minimization Program, the Air Quality Management Program, and the Spill Prevention Control and Countermeasure Plan for Naval Petroleum Reserve No. 3. A review of the Self-Assessment program resulted in a reduction in the scope of the self-assessment process to better reflect the current operational risks at Naval Petroleum Reserve No. 3. At the request of the U.S. Wildlife Service, a survey for the presence of raptors was conducted

at Naval Petroleum Reserve No. 3. While some species of raptors were found to be present on the property, there were no sightings of listed or endangered species. The environmental program at Naval Petroleum Reserve No. 3 continues to meet regulatory requirements. No notices of violation or fines were assessed during fiscal year 1996.

A Bio-Treatment Facility to treat produced water containing oil and gas was completed in fiscal year 1996. This project was designed to enhance the oxygen content and lower the hydrocarbon content of the effluent, thereby allowing water that was previously injected underground to be released to the surface for the benefit of wildlife and livestock. The total cost to build the facility was \$60,000, and operating costs are estimated at \$20,000 annually. The cost of injecting the produced water was approximately \$180,000. Hence, the Bio-Treatment Facility yielded cost savings of \$100,000 for the first year and will yield \$160,000 annually in future years. The Bio-Treatment Facility was awarded second place in the 1996 DOE Pollution Prevention Awards and first place in the 1996 Fossil Energy Environment, Safety & Health Achievement Awards.

Safety and Health

The management and operating contractor, Fluor Daniel (NPOS), Inc., met or exceeded its goals for accident rate reduction in fiscal year 1996. In January 1996, the contractor had accumulated 500,000 person-hours since December 1993 without a lost-time accident. As a result of the contractor's maintenance of an improving accident rate, two successive 3.3 percent reductions in Workers' Compensation insurance premiums were earned during fiscal year 1996.

NAVAL OIL SHALE RESERVES

Naval Oil Shale Reserve No. 1 and Naval Oil Shale Reserve No. 3 are adjacent oil shale reserves of 36,406 and 20,171 acres, respectively, located 8 miles west of Rifle, Colorado, in Garfield County. Except for private oil shale claims of about 600 acres at Naval Oil Shale Reserve No. 1, the Government owns all lands and minerals at Naval Oil Shale Reserve No. 1 and Naval Oil Shale Reserve No. 3. Naval Oil Shale Reserve No. 1 is estimated to contain more than 18 billion barrels of shale oil in place, with approximately 2.5 billion barrels of oil recoverable from shale rated at 30 gallons of oil or more per ton. Naval Oil Shale Reserve No. 3 has no commercial oil shale, but was set aside to gain closer access to the Colorado River for water and to provide space to support Naval Oil Shale Reserve No. 1 activities. Naval Oil Shale Reserve No. 2 covers 88,890 acres located in Carbon and Uintah Counties, Utah, which are approximately 50 miles southwest of Vernal, Utah. It contains 4.0 billion barrels of shale oil in place.

The Department of Energy has no current plans to develop the Naval Oil Shale Reserves shale resources. The Naval Oil Shale Reserve No. 1 Pre-Development Plan, completed in fiscal year 1982, provided a compilation and analysis of important technical, environmental, and economic data that identified the resource potential for production of 200,000 barrels of shale oil per day for more than 30 years. At the present time, extraction of oil from the shale is not economically competitive with production of conventional crude oil. Table 28 shows expenditures for programs carried out at the Naval Oil Shale Reserves since 1978, which includes the following: (1) Oil Shale Pre-Development Project; (2) surface resource management performed by the Bureau of Land Management; (3) demolition of the Anvil Points oil shale demonstration facility; (4) Department of Energy's Natural Gas Protection Drilling Program; and (5) oil and gas reserve studies.

A portion of the Naval Oil Shale Reserve No. 1 Anvil Points Mine has been converted into an oil shale core

repository. This saved more than \$10 million worth of oil shale core from being disposed of as a result of budgetary cutbacks by the U.S. Geological Survey at its Core Research Center in Denver, Colorado. A Memorandum of Understanding between the U.S. Geological Survey and the Department of Energy for management of this facility was completed during fiscal year 1996. This archived core could be of significant value if and when future technological or economic developments make oil shale a viable energy source.

SURFACE RESOURCE MANAGEMENT

Prior to fiscal year 1996, the Department of the Interior's Bureau of Land Management provided the surface resource management for Naval Oil Shale Reserve No. 1 and Naval Oil Shale Reserve No. 3 through a 1987 Memorandum of Understanding with the Department of Energy. Under this agreement, the Bureau of Land Management received funding from the Department of Energy to maintain multiple use of the lands within the Naval Oil Shale Reserves by the public and to prevent the surface resource values from declining. During fiscal year 1996, the Department of Energy assumed all surface management responsibilities from the Bureau of Land Management with the exception of administering grazing leases for Naval Oil Shale Reserve No. 1 and Naval Oil Shale Reserve No. 3. Surface management activities include support of public recreational use, environmental protection and assessments, and road maintenance. The Bureau of Land Management continues to provide surface management for Naval Oil Shale Reserve No. 2. The total cost of surface management during fiscal year 1996 for Naval Oil Shale Reserve No. 1, Naval Oil Shale Reserve No. 3, and Naval Oil Shale Reserve No. 2 was \$33,928.

NATURAL GAS PROTECTION PROGRAM

Naval Oil Shale Reserve No. 1 and Naval Oil Shale Reserve No. 3 are situated on the north and northwest flanks of three large natural-gas-producing fields: Parachute, Rulison, and Grand Valley. The Naval Petroleum and Oil Shale Reserves in Colorado, Utah, and Wyoming continuously monitor development activities on lands adjacent to the reserves to evaluate potential drainage and migration of natural gas from the reserves. The natural gas deposits on the reserves requiring protection are contained on lands located along the reserves' boundaries, where private property owners or their lessees have developed drilled wells on adjacent land, resulting in increasing pressure differentials and thus migration of natural gas from Naval Oil Shale Reserve property to the commercial producing wells adjacent to the reserves. The Department of Energy's monitoring activities determined in 1983 that the potential existed for drainage of natural gas by commercial development in the Rulison field on the southeast boundary of Naval Oil Shale Reserve No. 3. Since 1983, additional commercial gas wells have been drilled near Naval Oil Shale Reserve boundaries in the Parachute and Grand Valley fields.

To protect the Government's interest in the natural gas underlying the Naval Oil Shale Reserves, the Department of Energy has developed a program with two key elements, "communitization" and "offset," or wholly

owned, Department of Energy drilling. In communitization, the Government enters into agreements with producers drilling near the boundary of the Naval Oil Shale Reserves. Under these communitization agreements, each well is operated as a drilling unit, and development costs and hydrocarbon production are shared among the drilling unit partners with the actual percentage of ownership based on the acreage of each partner's mineral rights within the unit. Tracts are pooled under communitization agreements when the separate tracts cannot be developed and operated independently in conformity with state well-spacing requirements or established well-development programs.

In addition, the Government drills its own gas wells inside reserve boundaries to directly offset wells drilled on private lands. Although most of these wells are entirely Government-owned and operated, in some situations offset or protective wells may be communitized with adjacent private property owners and/or their lessees.

Through fiscal year 1996, 137 wells had been drilled by private industry within 1 mile of Naval Oil Shale Reserve No. 1 and Naval Oil Shale Reserve No. 3 boundaries, 13 of which have been either plugged and abandoned or have not been produced due to their marginal production or distance from a pipeline. The Department of Energy has entered into communitization agreements for 30 wells at Naval Oil Shale

Table 28
Naval Oil Shale Reserves Program
Estimated Total Cost Through 1996

Year	Oil shale pre-development and restoration	Non-protection surface management		Anvil Points demolition	Naval Oil Shale Reserves Gas Protection Drilling Program	NOSR Oil & Gas Reserve Studies	Total
		Bureau of Land Management	Department of Energy				
1978	\$ 1,448,144						\$ 1,448,144
1979	1,320,051						1,320,051
1980	3,177,132	\$ 54,774					3,231,906
1981	3,283,386	58,374					3,341,760
1982	622,944	21,833					644,777
1983	189,901	41,157					231,058
1984	277,047						277,047
1985	320,012	16,171		\$ 736,785	\$1,299,380		2,372,348
1986	17,500	70,717		2,133,775	1,047,781		3,269,773
1987		51,526			9,917		61,443
1988	23,211	37,054			92,258		152,523
1989	22,769	48,617			1,928,347		1,999,733
1990	28,200	65,154			2,504,637		2,597,991
1991	19,380	131,609			2,198,577		2,349,566
1992	18,512	160,145		6,049	3,310,200 ¹		3,494,906
1993	78,204	111,206		108,301	3,252,044 ²	\$417,148	3,966,903
1994		75,643		78,362	4,475,403	235,835	4,865,243
1995	18,478	104,509	126,124		8,086,163 ³		8,335,274 ³
1996		25,000	176,576		3,011,514		3,213,090 ⁴
Total	\$10,864,871	\$1,073,489	\$302,700	\$3,063,272	\$31,216,221	\$652,983	\$47,173,536

¹ The 1992 Gas Protection Drilling Program figure and Total Expenditures calculation are revisions to the FY 1992 Annual Report of Operations.

² The 1993 Gas Protection Drilling Program was reduced by the expenditures for the Naval Oil Shale Reserves Oil and Gas Studies associated with future development options.

³ Total excludes allocated contractor and program direction, overhead and fee, totaling \$1,344,538.

⁴ Total excludes allocated contractor and program direction, overhead and fee, totaling \$523,286.

Reserve No. 3. Of the 30 wells, 25 are covered by communitization agreements with Barrett Resources Corporation and were drilled and are operated by Barrett. The remaining 5 wells are offset wells, communitized with Barrett and other partners, and were drilled and are operated by the Department of Energy. In addition to the communitized wells, 24

wells at Naval Oil Shale Reserve No. 3 were drilled and are solely owned and operated by the Department of Energy. This 54-well program (Table 29) has prevented significant drainage of natural gas away from Naval Oil Shale Reserve No. 3, and will also provide a positive return on investment to the Federal Government. During fiscal year 1996, the Department of

Table 29
Naval Oil Shale Reserves Wells
Fiscal Year 1996

Well #	Operator	Location	Department of Energy (DOE interest (%))	Formation	Fiscal year drilled
Rulison Field					
1-M-9	DOE	SWSW 9-6S-94W	100	Mesaverde (Mv)	1985
1-M-19	DOE	NENE 19-6S-94W	73.09082	Mv	1986
1-W-9	DOE	SWSW 9-6S-94W	100	Wasatch	1990
1-W-17	DOE	SWSW 17-6S-94W	58.7052	Wasatch	1990
1-W-19	DOE	NENE 19-6S-94W	67.09429	Wasatch	1990
9-17-MV	Barrett	NESE 17-6S-94W	12.6839	Mv/Cameo	1991
1-M-17	DOE	SWSW 17-6S-94W	98.36075	Mv/Cameo	1991
1-M-8	DOE	SWSW 8-6S-94W	100	Mv/Cameo	1994
1-M-18	DOE	NENE 18-6S-94W	100	Mv/Cameo	1994
RM-2-8	DOE	NESE 8-6S-94W	100	Mv/Cameo	1995
RMV-59-17	Barrett	SESE 17-6S-94W	12.6839	Mv/Cameo	1995
RMV-50-18	Barrett	SESE 18-6S-94W	58.5650	Mv/Cameo	1995
RMV-63-19	Barrett	NESE 19-6S-94W	34.95850	Rulison	1996
Parachute Field					
W-29-26	Barrett	SWSW 26-6S-95W	50	Wasatch	1987
W-18-27	Barrett	SWSW 27-6S-95W	50	Wasatch	1987
W-17-27	Barrett	SWSE 27-6S-95W	75	Wasatch	1987
W-43-28	Barrett	NENW 28-6S-95W	50	Wasatch	1987
W-9-28	Barrett	NESW 28-6S-95W	50	Wasatch	1987
W-19-28	Barrett	SWSE 28-6S-95W	50	Wasatch	1987
W-20-32	Barrett	SENE 32-6S-95W	75	Wasatch	1987
W-5-33	Barrett	NENW 33-6S-95W	50	Wasatch	1987
1-W-21	DOE	SESW 21-6S-95W	100	Wasatch	1989
1-W-26	DOE	SENW 26-6S-95W	100	Wasatch	1989
1-W-27	DOE	SWNW 27-6S-95W	100	Wasatch	1989
2-W-27	DOE	SENE 27-6S-95W	100	Wasatch	1989
1-W-28	DOE	SWNE 28-6S-95W	100	Wasatch	1989
1-W-29	DOE	NESE 29-6S-95W	100	Wasatch	1989
2-W-29	DOE	NENE 29-6S-95W	100	Wasatch	1989
1-W-32	DOE	SENW 32-6S-95W	100	Wasatch	1989
GV-39-32	Barrett	NESW 32-6S-95W	50	Mv/Cameo	1990
1-895	Barrett	NENW 8-6S-95W	26.21875	Wasatch	1990
1-995	Barrett	SENW 9-6S-95W	25.7625	Wasatch	1990
1-1695	Barrett	NENW 16-6S-95W	36.825	Wasatch	1990
1-2095	Barrett	NENW 20-6S-95W	4.25	Wasatch	1990
3-W-29	DOE	SESW 29-6S-95W	100	Wasatch	1991
1-W-20	DOE	SWSE 20-6S-95W	100	Wasatch	1991

Continued

Table 29 (cont'd.)
Naval Oil Shale Reserves Wells
Fiscal Year 1996

Well #	Operator	Location	Department of Energy (DOE interest (%))	Formation	Fiscal year drilled
2-W-21	DOE	NWSE 21-6S-95W	100	Wasatch	1991
MV-43-31	Barrett	SESE 31-6S-95W	87.24205	Mv/Cameo	1992
MV-37-32	Barrett	SWNE 32-6S-95W	75	Mv/Cameo	1992
MV-13-33	Barrett	SENE 33-6S-95W	50	Mv/Cameo	1992
W-75-31	Barrett	SESE 31-6S-95W	75	Wasatch	1994
2-W-20	DOE	NENE 20-6S-95W	94.925	Wasatch	1993
1-M-29	DOE	NESE 29-6S-95W	100	Mv/Cameo	1993
1-M-31	DOE	SESW 31-6S-95W	100	Mv/Cameo	1994
2-M-29	DOE	SESW 29-6S-95W	100	Mv/Cameo	1994
3-W-21	DOE	SWNW 21-6S-95W	100	Wasatch	1994
PM-2-31	DOE	NENW 31-6S-95W	100	Mv/Cameo	1995
PW-3-20	DOE	SWSE 20-6W-95W	100	Mv/Cameo	1995
Grand Valley Field					
GV-24-36	Barrett	SWSE 36-6S-96W	47.5723	Mv/Cameo	1989
1-M-35	Barrett	SENE 35-6S-96W	87.53425	Mv/Cameo	1993
1-M-36	DOE	SWNW 36-6S-96W	100	Mv/Cameo	1993
2-M-36	DOE	SWNW 36-6S-96W	100	Mv/Cameo	1994
1-M-25	Barrett	SWSW 25-6S-96W	49.715579	MV/Cameo	1995
2-M-35	Barrett	SENE 35-6S-96W	87.53425	MV/Cameo	1995

Energy produced 3.6 billion cubic feet of gas from the Naval Oil Shale Reserves, which is a 27 percent increase over the previous year.

Production from wells near the boundaries of Naval Oil Shale Reserve No. 1 and Naval Oil Shale Reserve No. 3 is continuously monitored to maintain a current estimate of the quantity of gas drained from the Naval Oil Shale Reserves and the effect of the Department of Energy's protective drilling efforts. Through fiscal year 1996, 25 communitized wells operated by the Department of Energy's partners produced 10.9 billion cubic feet of natural gas, and 29 Department of Energy-operated offset and communitized protection wells produced 10.8 billion cubic feet of natural gas. Of the 21.7 billion cubic feet of cumulative production, the Department of Energy's share from both wholly owned and communitized wells has been 16.4 billion cubic feet. In fiscal year 1996, the Department of Energy participated in the drilling of three

Mesaverde wells. All three wells were successful and are currently producing.

A major expense associated with the gas production at Naval Oil Shale Reserve No. 3 has been the cost of getting the natural gas from the well to the buyer through a local gathering pipeline network and more extensive natural gas transmission pipelines. A gathering agreement was finalized in fiscal year 1996 and a new gathering system was installed by Rulison Gas Company to pick up the gas at the wellhead and transport it to the transmission pipeline at a lower cost than was previously charged. Initial sales through the new gathering system began on October 1, 1996. Depending on the volume of gas produced, the savings could be up to \$400,000 per year. The Department also saved \$40,000 annually by eliminating the need to have a compressor boost pressure in the local gathering system, as was required by the old gathering system.

During fiscal year 1996, the Department of Energy assumed direct management of the Naval Oil Shale Reserves' operations. The Naval Petroleum and Oil Shale Reserves in Colorado, Utah, and Wyoming significantly decreased costs by eliminating requirements of two management teams (contractor and Department of Energy) and by reducing the previous year's performance fees and other costs paid to the management and operating contractor by \$1 million.

To date, no protective drilling has occurred on Naval Oil Shale Reserve No. 1 and Naval Oil Shale Reserve No. 2. If a commercial well threatens to drain either of these reserves, the Department of Energy will consider implementing a protection strategy similar to that of Naval Oil Shale Reserve No. 3.

FUTURE DEVELOPMENT OF THE OIL AND GAS RESOURCES OF THE NAVAL OIL SHALE RESERVES

The gas protection program is a reactive, ongoing program that is constantly revised to respond to commercial drilling along the Naval Oil Shale Reserves' boundaries. A March 1995 ruling by the Colorado Oil and Gas Conservation Commission allows drilling Mesaverde formation wells with 40-acre density in certain areas surrounding the Naval Oil Shale Reserves. Well density in the area had previously been set by the Commission at primarily 80 acres for Mesaverde formation wells. Over the past several years, allowable well density has increased from one Mesaverde formation well per 320 acres to one Mesaverde formation well per 40 acres. The increased Mesaverde formation well density will allow for an increase in the amount of natural gas that can be recovered from Mesaverde formation wells in the Naval Oil Shale Reserve No. 3 area. As part of a test to determine whether economic gas recovery can be further increased, in November 1996 the Colorado Oil and Gas Conservation Commission approved the limited testing of one well per 20 acres. The testing will be con-

ducted in two specified areas near the south boundary of Naval Oil Shale Reserve No. 3. Future activity by the Federal government to protect the natural gas resources at the Naval Oil Shale Reserves will be contingent upon the requirements of legislation being considered by Congress in the summer of 1997 regarding the disposition of the Federal Government's ownership interests in these properties (see the section in this report entitled "Divestment").

REVENUES AND EXPENDITURES

Fiscal year 1996 revenues from the sale of natural gas and gas condensate produced at Naval Oil Shale Reserve No. 3 totaled \$3,146,052. For fiscal year 1996 expenditures totaled \$3,736,376, which includes allocated contractor costs, program direction costs, overhead costs, and fee of \$523,286. Operation and maintenance expenses for existing wells totaled \$558,636. Investment project costs, which increase reserves and have a payout longer than one year, totaled \$2,452,878. Surface management and environmental survey costs in support of surface management for all of the Naval Oil Shale Reserves totaled \$201,576.

The capital investment for drilling natural gas wells is initially high, particularly for wells drilled to the deeper Mesaverde formation. Revenues from a Wasatch formation well will not normally exceed drilling, completion, and operating costs until at least the third year of production. As of September 30, 1996, proved developed reserves for the existing wells are conservatively estimated at 17.5 billion cubic feet (Department of Energy's share).

SALES

In fiscal year 1996, the Department of Energy sold an average of 10,543 million British thermal units (Btu) per day of Naval Oil Shale Reserve No. 3 natural gas at an average price of \$0.82 per million Btu. Sales of natural gas condensate totaled 9.58 barrels per day, at an average of \$18.88 per barrel (Table 30).

Table 30
Naval Oil Shale Reserve No. 3
Natural Gas and Condensate Sales, Fiscal Year 1996
Quantity Delivered

Natural gas				
Company	Average quantity delivered¹ (million British thermal units/day)	Average billing price¹ (paid to Department of Energy)	Gathering fee (paid by purchaser to pipeline company)	Purchaser's cost of gas delivered to pipeline
Associated Gas Services, Inc. October 1, 1995-March 31, 1996	10,873	\$0.86	\$0.32 ²	\$1.18
Barrett Resources (Excess Gas) January 12, 1996-June 31, 1996	261	\$0.73	\$0.29	\$1.02
Pan Energy Gas Services, Inc. April 1, 1996-September 30, 1996	10,187	\$0.77	\$0.32 ²	\$1.09
Condensate				
Company	Average quantity delivered¹ (barrels/day)	Average billing price¹ (\$/barrel)		
EOTT Energy Operating Ltd. Partnership October 1, 1995-September 30, 1996	9.58	\$18.88		
Barrett Resources Corporation (MV 9-17) October 1, 1995-September 30, 1996	1.93	\$19.74		

¹ The averages shown are average quantities delivered during periods of sales, not the whole year.
² Associated Gas Services, Inc./Pan Energy purchased a mix of Grand Valley gas and Williams Field Service gas. The gas gathering fee shown for this purchase is an average of the two fees.

ENVIRONMENT, SAFETY, AND HEALTH

Oil shale development efforts at the Anvil Points Facility on Naval Oil Shale Reserve No. 3 between 1946 and 1982 generated a 178,000-cubic-yard waste shale pile. The Naval Energy and Environmental Support Activity studied the potential for environmental contamination from this pile and concluded in February 1985 that the waste pile presented no significant threat to human health or the environment. The Naval Energy and Environmental Support Activity recommended that a groundwater monitoring survey further define the existing conditions. A preliminary assessment of the shale pile conducted during fiscal year 1991 determined that the shale pile presented a low risk to the environment. During fiscal year 1994, the base of the shale pile was stabilized. During fiscal years 1995 and 1996, testing of the surface and ground

water showed no signs of pollution. Testing will continue on an annual basis.

The Department's goal is to conduct gas protection activity and to support multiple public use activities in a manner consistent with sound environmental protection. In the spring of 1994 the Department initiated a sitewide biological survey of Naval Oil Shale Reserve No. 3 and completed the survey in fiscal year 1995. Several sites contained endangered plants; these sites will be avoided. A cultural survey of Naval Oil Shale Reserve No. 1 and Naval Oil Shale Reserve No. 3 and the Biological Survey of Naval Oil Shale Reserve No. 1 began in fiscal year 1995 and were completed in September of fiscal year 1996. These surveys will supply data for National Environmental Policy Act documents (if needed), ensure compliance with National Historical Preservation Act requirements, and enable the Department to avoid disturbance of all critical sites.

DIVESTMENT

In fiscal year 1995, the Department of Energy evaluated its activities in the context of current and broader national priorities and needs and concluded that the continued operation of what was essentially a commercial enterprise, such as the Naval Petroleum and Oil Shale Reserves, was inappropriate and likely less effective than operation by a private entity. Analysis of an appropriate disposition of the Reserves that will be supportive of this policy decision was continued in fiscal year 1996 by the Department of Energy, the Office of Management and Budget, and the Treasury Department. The issue of continued operation and ownership of the Naval Petroleum and Oil Shale Reserves by the Federal Government was also examined by various committees in both Houses of Congress. The culmination of these efforts was the inclusion of title XXXIV of the National Defense Authorization Act for Fiscal Year 1996 (Pub. L. 104-106) that requires DOE to sell all of the Federal Government's interests in Naval Petroleum Reserve No. 1 and to study potential options to maximize the value to the United States of the other five Naval Petroleum and Oil Shale Reserves.

The major provisions of Pub. L. 104-106 regarding the sale of Naval Petroleum No. 1 are the following:

- The sale is to be completed by February 10, 1998.
- The Secretary is directed to finalize the equity interests of the known oil and gas zones at Elk Hills. Under the terms of the Unit Plan Contract of 1944 which governed the ownership and operation of Elk Hills by its two owners (the Federal Government and Chevron), either owner could request a redetermination of the equity interests at any time. The Secretary was directed to retain the services of an independent petroleum engineer to prepare a recommendation on the final equity figures. The Secretary may accept the recommendations of the independent engineer on final equity figures, or may use other methods to establish final equity as the Secretary considers appropriate.
- An investment banker is to be retained by DOE to administer the sale of Naval Petroleum Reserve No. 1 in a manner consistent with commercial practices and in a manner that maximizes sale proceeds to the Government.
- A minimum acceptable sale price for Naval Petroleum Reserve No. 1 shall be determined by the Secretary of Energy in consultation with the Director of the Office of Management and Budget based on five independent appraisals of its value under continued Federal Government ownership and operation.
- An independent reserve report identifying remaining recoverable hydrocarbon reserves is to be completed by an independent petroleum engineer.
- A legislative safeguard was incorporated that authorizes the Department of Energy to suspend the sale of Elk Hills if the Department of Energy and the Office of Management and Budget jointly determine that the sale is proceeding in a manner inconsistent with achieving a price that reflects Elk Hills' full value or that a course of action other than sale is in the best interest of the United States.

Pursuant to these statutory requirements, the Department of Energy issued a Notice of Intent to Sell Naval Petroleum Reserve No. 1 in April 1996. In June 1996, the Department hired CS First Boston Corporation and Petrie Parkman & Co. as the investment advisor team to administer the sale of the Government's ownership share of the Elk Hills field and to devise a sales strategy that would maximize competition among potential purchasers. The Ryder Scott Company was retained in April 1996 to prepare an independent reserves report for Elk Hills. The firm of Netherland, Sewell & Associates was retained in July 1996 to prepare a recommendation on the final equity figures for each of the shared producing zones at Elk Hills.

After conducting a months-long solicitation process during which more than 200 companies were contacted, 22 bona fide offers for Elk Hills were received from a diverse bidder group of 15 parties acting alone or in concert. On October 6, 1997, the Department announced that it had accepted a bid of \$3.65 billion in cash from Occidental Petroleum Corporation. Although there remains some additional administrative work to do as of the date of this report, all activities are on schedule as of that date to fulfill the mandate in Pub. L. 104-106 to complete the sale of Elk Hills by February 10, 1998. Once successfully completed, the sale of Elk Hills will be the largest privatization in the history of the United States Government.

To implement the requirements of Pub. L. 104-106 regarding the Naval Petroleum and Oil Shale Reserves other than Elk Hills, the Department of Energy retained the firm of John Gustavson & Associates in April 1996 to prepare a report which examined which of the four options (or combination of options) specified in Pub. L. 104-106 will maximize the value of these properties. The four options follow:

- Retention and operation of the properties by the Secretary of Energy under Chapter 641 of Title 10, United States Code (which codified the Naval Petroleum Reserves Production Act of 1976, Pub. L. 94-258).
- Transfer of all or part of the properties to the jurisdiction of another Federal agency for adminis-

tration under Chapter 641 of Title 10, United States Code.

- Transfer of all or part of the properties to the Department of the Interior for leasing in accordance with the Mineral Leasing Act (30 U.S.C. 181 *et seq.*) and surface management in accordance with the Federal Land Policy and Management Act (43 U.S.C. 1701 *et seq.*).
- Sale of the United States' interest in the properties.

The report was completed in December 1996. Recommendations on the management and disposition of the Naval Petroleum and Oil Shale Reserves, based upon the report, were submitted by the Department of Energy to Congress in March 1997.

In order to comply with the requirements of the National Environmental Policy Act (NEPA) for the mandated sale of Naval Petroleum Reserve No. 1, the Department of Energy determined that it would be necessary to prepare a Supplemental Environmental Impact Statement (EIS). Public Scoping Meetings were held in Bakersfield, California, in June 1996. A draft Supplemental EIS was issued in July 1997, and a public hearing was held on the draft on August 26, 1997, in Bakersfield, California. Public comments on the draft Supplemental EIS were accepted through September 8, 1997.

STATISTICAL APPENDIX

CRUDE OIL PRODUCTION - Barrels

Fiscal Year	Naval Petroleum Reserve No. 1 ¹	Naval Petroleum Reserve No. 2 ²	Naval Petroleum Reserve No. 3 ¹	Total
FY77 ³	3,807,974	33,769	147,392	3,989,135
1977	36,999,238	142,714	388,861	37,530,813
1978	43,485,349	128,971	714,467	44,328,787
1979	52,639,748	121,331	1,540,200	54,301,279
1980	58,281,170	107,340	1,603,477	59,991,987
1981	62,609,584	98,606	1,235,835	63,944,025
1982	60,698,376	97,283	1,144,500	61,940,159
1983	57,353,109	93,080	1,043,248	58,489,437
1984	50,473,675	94,179	1,074,799	51,642,653
1985	47,683,491	92,122	1,061,098	48,836,711
1986	42,166,485	83,209	1,150,411	43,400,105
1987	39,812,627	69,663	1,130,402	41,012,692
1988	39,316,391	67,848	979,279	40,363,518
1989	35,214,837	63,250	832,643	36,110,730
1990	29,945,732	70,429	829,492	30,845,653
1991	27,154,434	70,432	819,886	28,044,752
1992	25,442,293	70,743	858,433	26,371,469
1993	23,878,778	116,083	725,765	24,720,626
1994	24,150,644	90,016	595,827	24,836,487
1995	23,123,630	76,907	647,611	23,848,148
1996	21,876,246	61,915	586,105	22,524,266
TOTAL	806,113,811	1,849,890	19,109,731	827,073,432

¹ Total Reserve production.² Government's royalty share of production.³ Transition period for change of fiscal year —7/1/76 to 9/30/76.

NATURAL GAS PRODUCTION - Thousands of Cubic Feet

Fiscal Year	Naval Petroleum Reserve No. 1 ¹	Naval Petroleum Reserve No. 2 ²	Naval Petroleum Reserve No. 3 ¹	Naval Oil Shale Reserve No. 3 ³	Total
FY77 ⁴	768,125	117,698	7,595	---	893,418
1977	19,535,104	428,179	179,226	---	20,142,509
1978	34,347,853	379,581	530,145	---	35,257,579
1979	53,310,089	361,982	1,269,530	---	54,941,601
1980	60,615,227	297,787	1,792,477	---	62,705,491
1981	101,043,169	251,902	2,799,377	---	104,094,448
1982	119,485,538	274,806	2,774,155	---	122,534,499
1983	121,254,625	254,306	2,641,015	---	124,149,946
1984	128,969,441	256,450	2,907,516	---	132,133,407
1985	134,745,060	268,262	3,033,315	---	138,046,637
1986	127,430,198	262,488	3,037,404	---	130,730,090
1987	125,249,760	231,372	3,906,102	---	129,387,234
1988	131,379,158	225,870	3,923,434	---	135,528,462
1989	134,832,380	245,979	3,386,559	215,535	138,680,453
1990	125,586,458	271,653	3,042,560	1,575,731	130,476,402
1991	120,664,855	274,011	3,210,393	2,079,745	126,229,004
1992	114,290,283	271,547	2,809,435	1,496,815	118,868,080
1993	117,807,470	268,140	2,290,891	2,402,108	122,768,609
1994	123,422,662	266,922	2,162,520	1,878,497	127,730,601
1995	119,201,569	278,387	1,450,020	3,117,547	124,047,523
1996	131,153,563	275,207	2,423,134	3,585,776	137,437,680
TOTAL	2,145,092,587	5,762,529	49,576,803	16,351,754	2,216,783,673

¹ Total Reserve production on a wet basis—includes reinjection, sales, shrinkage, and usage.

² Government's royalty share of sales on a dry basis.

³ Department of Energy share from both wholly owned and communitized wells.

⁴ Transition period for change of fiscal year — 7/1/76 to 9/30/76.

PROPANE PRODUCTION - Gallons

Fiscal Year	Naval Petroleum Reserve No. 1 ¹	Naval Petroleum Reserve No. 2 ²	Naval Petroleum Reserve No. 3 ¹	Total
FY77 ³	740,604	57,206	---	797,810
1977	13,099,501	270,945	---	13,370,446
1978	20,490,769	247,109	---	20,737,878
1979	40,123,793	226,877	---	40,350,670
1980	54,282,703	235,308	---	54,518,011
1981	75,906,589	228,134	600,294	76,735,017
1982	100,094,374	224,167	1,986,637	102,305,178
1983	96,275,277	182,996	2,012,841	98,471,114
1984	89,311,465	220,703	2,466,499	91,998,667
1985	96,662,714	161,815	2,185,776	99,010,305
1986	93,123,652	153,509	1,785,883	95,063,044
1987	89,514,424	120,403	1,882,298	91,517,125
1988	89,496,614	122,609	1,325,162	90,944,385
1989	86,759,718	124,289	1,154,060	88,038,067
1990	74,060,718	87,876	812,161	74,960,755
1991	66,432,443	73,109	729,815	67,235,367
1992	56,615,255	40,903	655,631	57,311,789
1993	52,435,577	45,449	551,877	53,032,903
1994	52,293,519	32,430	727,725	53,053,674
1995	60,509,652	20,837	498,141	61,028,630
1996	59,055,596	18,450	614,224	59,688,270
TOTAL	1,367,284,957	2,895,124	19,989,024	1,390,169,105

¹ Total Reserve volume extracted from wet gas.² Government's royalty share of LPG (propane and/or butane) extracted from wet gas.³ Transition period for change of fiscal year — 7/1/76 to 9/30/76.

NATURAL GASOLINE PRODUCTION - Gallons

Fiscal Year	Naval Petroleum Reserve No. 1¹	Naval Petroleum Reserve No. 2²	Naval Petroleum Reserve No. 3¹	Total
FY77 ³	477,168	160,195	---	637,363
1977	8,664,010	657,568	---	9,321,578
1978	19,391,317	626,530	---	20,017,847
1979	35,076,349	514,950	---	35,591,299
1980	40,466,632	740,197	2,051,043 ⁴	41,206,829
1981	48,871,367	483,588	4,142,815 ⁴	49,354,955
1982	63,308,858	447,417	---	63,756,275
1983	61,583,866	411,652	---	61,995,518
1984	64,099,013	453,442	---	64,552,455
1985	80,675,823	333,846	---	81,009,669
1986	68,960,820	269,675	---	69,230,495
1987	71,028,620	216,619	---	71,245,239
1988	75,729,193	233,417	---	75,962,610
1989	75,852,694	233,451	---	76,086,145
1990	65,025,816	158,374	---	65,184,190
1991	59,094,208	167,728	---	59,261,936
1992	55,381,613	160,743	---	55,542,356
1993	54,909,521	137,713	---	55,047,233
1994	53,151,458	140,701	---	53,292,159
1995	53,439,885	117,782	---	53,557,667
1996	57,140,815	96,746	---	57,237,561
TOTAL	1,112,329,046	6,762,334	6,193,858⁴	1,119,091,379

¹ Total Reserve volume extracted from wet gas.

² Government's royalty share of volume extracted from wet gas.

³ Transition period for change of fiscal year — 7/1/76 to 9/30/76.

⁴ Deethanized LPG (natural gasoline plus propane and butane) extracted from wet gas, not included in natural gasoline totals.

MIXED BUTANE PRODUCTION - Gallons

Fiscal Year	Naval Petroleum Reserve No. 1¹	Naval Petroleum Reserve No. 2²	Naval Petroleum Reserve No. 3^{1,3}	Total
FY77 ⁴	393,138	---	---	393,138
1977	12,466,858	---	---	12,466,858
1978	16,351,281	---	---	16,351,281
1979	21,071,136	---	---	21,071,136
1980	38,060,833	---	---	38,060,833
1981	60,743,858	---	1,136,676	61,880,534
1982	72,909,022	---	3,376,161	76,285,183
1983	79,494,982	---	3,084,910	82,579,892
1984	74,608,592	---	3,144,964	77,753,556
1985	71,865,022	30,677	3,013,570	74,909,269
1986	68,881,553	24,786	2,825,464	71,731,803
1987	69,852,117	21,812	3,298,409	73,172,338
1988	71,686,357	17,588	2,820,663	74,524,608
1989	68,796,470	12,922	2,843,090	71,652,482
1990	58,718,305	17,539	2,406,607	61,142,451
1991	49,660,429	16,320	2,338,454	52,015,203
1992	40,020,225	19,403	2,131,255	42,170,883
1993	37,377,921	30,042	1,747,029	39,154,992
1994	34,935,475	41,946	2,011,264	36,988,685
1995	34,234,348	20,444	1,788,667	36,043,459
1996	37,171,845	11,509	2,005,677	39,189,031
TOTAL	1,019,299,767	264,988	39,972,860	1,059,537,615

¹ Total Reserve volume extracted from wet gas.² Government's royalty share of production.³ Butane-plus heavier liquids extracted from wet gas.⁴ Transition period for change of fiscal year — 7/1/76 to 9/30/76.

ISOBUTANE PRODUCTION - Gallons

Fiscal Year	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
1991	4,049,633	---	---	4,049,633
1992	8,926,706	---	---	8,926,706
1993	10,770,232	---	---	10,770,232
1994	11,156,608	---	---	11,156,608
1995	10,934,882	---	---	10,934,882
1996	10,980,864	---	---	10,980,864
TOTAL	56,818,925	---	---	56,818,925

CARBON DIOXIDE PRODUCTION - Gallons

Fiscal Year	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2¹	Naval Petroleum Reserve No. 3	Total
FY77 ²	---	6,644	---	6,644
1977	---	26,793	---	26,793
1978	---	18,274	---	18,274
1979	---	27,449	---	27,449
1980	---	27,208	---	27,208
1981	---	24,491	---	24,491
1982	---	15,575	---	15,575
1983	---	21,197	---	21,197
1984	---	1,398	---	1,398
1985	---	0	---	0
1986	---	0	---	0
1987	---	0	---	0
1988	---	0	---	0
1989	---	0	---	0
1990	---	0	---	0
1991	---	0	---	0
1992	---	0	---	0
1993	---	0	---	0
1994	---	0	---	0
1995	---	0	---	0
1996	---	0	---	0
TOTAL	---	169,029	---	169,029

¹ Government's royalty share of production.² Transition period for change of fiscal year — 7/1/76 to 9/30/76.

REVENUES - All Sources

Fiscal Year	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Naval Oil Shale Reserves	Total
FY77 ¹	\$ 31,484,923	\$ 552,843	\$ 2,001,105	---	\$ 34,038,871
1977	395,596,017	1,668,707	5,671,709	---	402,936,433
1978	492,405,349	2,288,024	11,027,244	---	505,720,617
1979	719,072,530	2,637,088	32,800,360	---	754,509,978
1980 ²	1,518,057,603	4,154,637	68,251,699	---	1,590,463,939
1981 ²	1,615,111,610	3,920,794	47,429,283	---	1,666,461,687
1982 ²	1,560,022,925	4,005,332	42,774,817	---	1,606,803,074
1983 ²	1,492,359,890	3,607,751	36,626,029	---	1,532,593,670
1984 ²	1,375,874,960	3,667,670	34,969,021	---	1,414,511,651
1985 ²	1,264,265,523	3,481,073	31,482,721	---	1,299,229,317
1986 ²	737,822,563	2,453,465	23,096,234	---	763,372,262
1987	644,983,493	1,833,539	21,346,149	---	668,163,181
1988	622,857,317	1,769,096	17,868,311	---	642,494,724
1989	613,546,143	1,781,214	16,096,309	\$ 143,570	631,567,236
1990	580,376,895	2,070,647	18,610,484	1,428,345	602,486,371
1991	629,260,321	2,339,349	20,396,852	2,185,342	654,181,864
1992	451,214,157	2,071,969	18,266,925	1,247,361	472,800,412
1993	419,342,208	2,615,775	14,227,422	3,536,152	439,721,557
1994	390,143,530	1,633,849	10,181,994	2,952,202	404,911,575
1995	401,023,889	1,715,352	12,213,813	2,536,667	417,489,721 ³
1996	425,413,231	1,383,593	12,446,868	3,146,052	442,389,744
TOTAL	\$16,380,235,077	\$51,651,767	\$497,785,349	\$17,175,691	\$16,946,847,884

¹ Transition period for change of fiscal year—7/1/76 to 9/30/76.

² Includes Windfall Profit Taxes.

³ Revenues represent accrued earnings for fiscal year 1995. Actual deposits to the U.S. Treasury totaled \$412 million. The difference reflects revenues earned at the end of fiscal year 1995 for which payment will be received at the beginning of fiscal year 1996.

EXPENDITURES - All Sources

**Naval Petroleum and
Oil Shale Reserves in Colorado, Utah, and Wyoming**

Fiscal Year	Naval Petroleum Reserves Nos. 1 & 2	Naval Petroleum Reserve No. 3	Naval Oil Shale Reserves	Rocky Mountain Oilfield Testing Center	Total
FY7T ¹	\$ 19,415,052	\$ 325,197	\$ 0	---	\$ 19,740,249
1977	97,900,910	17,350,000	0	---	115,250,910
1978	126,678,825	24,258,434	1,448,144	---	152,385,403
1979	107,701,600	21,344,958	1,320,051	---	130,366,609
1980	98,815,854	18,210,312	3,231,906	---	120,258,072
1981	192,357,818	18,615,440	3,341,760	---	214,315,018
1982	224,585,590	20,222,965	644,777	---	245,453,332
1983	196,724,031	20,502,543	231,058	---	217,457,632
1984	103,313,414	21,812,456	277,047	---	125,402,917
1985	110,945,390	24,219,175	2,372,348	---	137,536,913
1986	132,047,125	19,471,206	3,269,773	---	154,788,104
1987	132,129,532	13,552,081	61,443	---	145,713,056
1988	167,225,441	14,488,726	152,523	---	181,826,690
1989	159,100,177	13,721,502	1,999,733	---	174,821,412
1990	161,153,546	15,184,654	2,597,991	---	178,936,191
1991	179,761,945	18,375,143	2,349,566	---	200,486,654 ²
1992	180,996,659	17,728,698	3,494,906 ²	---	202,220,263 ²
1993	189,278,808	13,548,650	3,966,903	---	206,794,361
1994	216,896,261	11,627,317	4,865,243	---	233,388,821
1995	169,608,231	15,027,780 ³	9,679,812 ³	953,637 ³	195,269,460
1996	144,811,573	12,204,633 ³	3,736,376 ³	2,114,078 ³	162,866,660
TOTAL	\$3,111,447,782	\$351,721,870	\$49,041,360	\$3,067,715	\$3,515,278,727

¹ Transition period for change of fiscal year—7/1/76 to 9/30/76.² Revision to the fiscal year 1992 *Annual Report of Operations*.³ Total includes allocated contractor and program direction overhead and fee.

REVENUES - Fiscal Year 77¹

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
Crude oil	\$30,451,322	\$403,690	\$2,001,105	\$32,856,117
Natural gas	---	110,697	---	110,697
Propane	175,594	9,672	---	185,266
Butane	69,998	---	---	69,998
Gasoline	82,065	28,473	---	110,538
Carbon dioxide	---	311	---	311
Subtotal	\$30,778,979	\$552,843	\$2,001,105	\$33,332,927
Other	705,944	---	---	705,944
TOTAL	\$31,484,923	\$552,843	\$2,001,105	\$34,038,871

¹ Transition period for change fiscal year — 7/1/76 to 9/30/76.

REVENUES - Fiscal Year 1977

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
Crude oil	\$366,382,890	\$ 948,904	\$5,639,664	\$372,971,458
Natural gas	---	502,747	---	502,747
Propane	2,189,201	57,486	---	2,246,687
Butane	1,493,916	---	---	1,493,916
Gasoline	1,452,572	157,358	---	1,609,930
Carbon dioxide	---	1,252	---	1,252
Subtotal	\$371,518,579	\$1,667,747	\$5,639,664	\$378,825,990
Other	24,077,438	960	32,045	24,110,443
TOTAL	\$395,596,017	\$1,668,707	\$5,671,709	\$402,936,433

REVENUES - Fiscal Year 1978

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
Crude oil	\$458,662,162	\$1,449,662	\$11,014,212	\$471,126,036
Natural gas	---	574,564	---	574,564
Propane	4,257,529	70,388	---	4,327,917
Butane	3,164,961	---	---	3,164,961
Gasoline	4,257,736	191,156	---	4,448,892
Carbon dioxide	---	1,294	---	1,294
Subtotal	\$470,342,388	\$2,287,064	\$11,014,212	\$483,643,664
Other	22,062,961	960	13,032	22,076,953
TOTAL	\$492,405,349	\$2,288,024	\$11,027,244	\$505,720,617

REVENUES - Fiscal Year 1979

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
Crude oil	\$656,385,700	\$1,725,560	\$32,796,213	\$690,907,473
Natural gas	---	617,201	---	617,201
Propane	7,664,366	55,586	---	7,719,952
Butane	4,619,905	---	---	4,619,905
Gasoline	8,523,008	235,499	---	8,758,507
Carbon dioxide	---	2,282	---	2,282
Subtotal	\$677,192,979	\$2,636,128	\$32,796,213	\$712,625,320
Other	41,879,551	960	4,147	41,884,658
TOTAL	\$719,072,530	\$2,637,088	\$32,800,360	\$754,509,978

REVENUES - Fiscal Year 1980

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
Crude oil ¹	\$1,437,284,113	\$3,083,379	\$67,505,561	\$1,507,873,053
Natural gas	5,561,808	669,573	---	6,231,381
Propane	14,237,566	70,475	---	14,308,041
Butane	13,570,458	---	---	13,570,458
Gasoline	19,212,861	327,937	728,325 ²	20,269,123
Carbon dioxide	---	2,313	---	2,313
Subtotal	\$1,489,866,806	\$4,153,677	\$68,233,886	\$1,562,254,369
Other	28,190,797	960	17,813	28,209,570
TOTAL	\$1,518,057,603	\$4,154,637	\$68,251,699	\$1,590,463,939

¹ Includes Windfall Profit Taxes.

² Deethanized LPG sales.

REVENUES - Fiscal Year 1981

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
Crude oil ¹	\$1,430,543,043	\$2,849,575	\$44,901,638	\$1,478,294,256
Natural gas	61,517,438	639,056	141,519	62,298,013
Propane	29,417,603	98,750	234,114	29,750,467
Butane	22,799,279	---	693,373	23,492,652
Gasoline	29,785,069	330,371	1,421,512 ²	31,536,952
Carbon dioxide	---	2,082	---	2,082
Subtotal	\$1,574,062,432	\$3,919,834	\$47,392,156	\$1,625,374,422
Other	41,049,178	960	37,127	41,087,265
TOTAL	\$1,615,111,610	\$3,920,794	\$47,429,283	\$1,666,461,687

¹ Includes Windfall Profit Taxes.

² Deethanized LPG sales.

REVENUES - Fiscal Year 1982

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
Crude oil ¹	\$1,296,145,893	\$2,707,616	\$37,810,098	\$1,336,663,607
Natural gas	110,067,587	879,605	2,319,619	113,266,811
Propane	36,564,609	103,778	688,429	37,356,816
Butane	26,811,192	---	1,936,678	28,747,870
Gasoline	39,109,867	308,843	---	39,418,710
Carbon dioxide	---	1,324	---	1,324
Subtotal	\$1,508,699,148	\$4,001,166	\$42,754,824	\$1,555,455,138
Other	51,323,777	4,166	19,993	51,347,936
TOTAL	\$1,560,022,925	\$4,005,332	\$42,774,817	\$1,606,803,074

¹ Includes Windfall Profit Taxes.**REVENUES - Fiscal Year 1983**

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
Crude oil ¹	\$1,184,364,058	\$2,353,182	\$32,101,634	\$1,218,818,874
Natural gas	168,825,590	879,333	2,135,679	171,840,602
Propane	32,844,166	94,335	664,573	33,603,074
Butane	32,642,055	---	1,705,465	34,347,520
Gasoline	36,142,539	278,149	---	36,420,688
Carbon dioxide	---	1,792	---	1,792
Subtotal	\$1,454,818,408	\$3,606,791	\$36,607,351	\$1,495,032,550
Other	37,541,482	960	18,678	37,561,120
TOTAL	\$1,492,359,890	\$3,607,751	\$36,626,029	\$1,532,593,670

¹ Includes Windfall Profit Taxes.

REVENUES - Fiscal Year 1984

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
Crude oil ¹	\$1,076,981,925	\$2,324,197	\$32,018,705	\$1,111,324,827
Natural gas	174,278,241	956,175	---	175,234,416
Propane	34,283,975	113,676	1,029,954	35,427,605
Butane	36,261,900	---	1,914,737	38,176,637
Gasoline	35,604,763	272,543	---	35,877,306
Carbon dioxide	---	119	---	119
Subtotal	\$1,357,410,804	\$3,666,710	\$34,963,396	\$1,396,040,910
Other	18,464,156	960	5,625	18,470,741
TOTAL	\$1,375,874,960	\$3,667,670	\$34,969,021	\$1,414,511,651

¹ Includes Windfall Profit Taxes.

REVENUES - Fiscal Year 1985

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
Crude oil ¹	\$957,211,205	\$2,261,874	\$29,179,047	\$988,652,126
Natural gas	186,850,058	940,999	---	187,791,057
Propane	37,027,630	77,626	794,504	37,899,760
Butane	27,260,501	14,070	1,493,501	28,768,072
Gasoline	35,722,005	185,544	---	35,907,549
Carbon dioxide	---	---	---	0
Subtotal	\$1,244,071,399	\$3,480,113	\$31,467,052	\$1,279,018,564
Other	20,194,124	960	15,669	20,210,753
TOTAL	\$1,264,265,523	\$3,481,073	\$31,482,721	\$1,299,229,317

¹ Includes Windfall Profit Taxes.

REVENUES - Fiscal Year 1986

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
Crude oil ¹	\$524,200,210	\$1,434,686	\$21,373,493	\$547,008,389
Natural gas	119,654,200	821,509	---	120,475,709
Propane	27,581,098	57,092	548,682	28,186,872
Butane	18,102,838	9,433	1,136,650	19,248,921
Gasoline	23,719,211	129,785	---	23,848,996
Carbon dioxide	---	---	---	0
Subtotal	\$713,257,557	\$2,452,505	\$23,058,825	\$738,768,887
Other	24,565,006	960	37,409	24,603,375
TOTAL	\$737,822,563	\$2,453,465	\$23,096,234	\$763,372,262

¹ Includes Windfall Profit Taxes.**REVENUES - Fiscal Year 1987**

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
Crude oil ¹	\$498,142,010	\$1,033,756	\$19,539,710	\$518,715,476
Natural gas	73,872,765	672,485	---	74,545,250
Propane	17,949,731	34,338	403,874	18,387,943
Butane	12,978,619	5,981	1,139,591	14,124,191
Gasoline	20,894,746	82,981	---	20,977,727
Carbon dioxide	---	---	---	0
Subtotal	\$623,837,871	\$1,829,541	\$21,083,175	\$646,750,587
Other	21,145,622	3,998	262,974	21,412,594
TOTAL	\$644,983,493	\$1,833,539	\$21,346,149	\$668,163,181

REVENUES - Fiscal Year 1988

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Total
Crude oil	\$453,378,011	\$999,692	\$16,563,866	\$470,941,569
Natural gas	79,087,749	638,315	---	79,726,064
Propane	20,312,185	35,490	267,301	20,614,976
Butane	14,647,458	4,916	1,023,419	15,675,793
Gasoline	24,192,974	89,403	---	24,282,377
Carbon dioxide	---	---	---	0
Subtotal	\$591,618,377	\$1,767,816	\$17,854,586	\$611,240,779
Other	31,238,940	1,280	13,725	31,253,945
TOTAL	\$622,857,317	\$1,769,096	\$17,868,311	\$642,494,724

REVENUES - Fiscal Year 1989

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Naval Oil Shale Reserve No. 3	Total
Crude oil	\$441,898,134	\$920,165	\$14,921,345	---	\$457,739,644
Natural gas	89,277,429	709,684	---	\$143,570	90,130,683
Propane	19,078,608	36,664	212,004	---	19,327,276
Butane	13,981,521	3,565	958,607	---	14,943,693
Gasoline	25,030,467	80,179	---	---	25,110,646
Carbon dioxide	---	---	---	---	0
Subtotal	\$589,266,159	\$1,750,257	\$16,091,956	\$143,570	\$607,251,942
Other	24,279,984 ¹	30,957	4,353	---	24,315,294
TOTAL	\$613,546,143	\$1,781,214	\$16,096,309	\$143,570	\$631,567,236

¹ Includes refunds to the Defense Fuel Supply Center, settlement of court cases, and a write-off as a result of bankruptcy proceedings.

REVENUES - Fiscal Year 1990

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Naval Oil Shale Reserve No. 3	Total
Crude oil	\$422,054,994	\$1,115,015	\$17,572,488	\$ 35,346	\$440,777,843
Natural gas	67,805,847	789,650	---	1,362,329	69,957,826
Propane	20,116,810	30,418	197,700	---	20,344,928
Butane	13,398,830	4,287	824,378	---	14,227,495
Gasoline	23,930,568	62,386	---	---	23,992,954
Carbon dioxide	---	---	---	---	0
Subtotal	\$547,307,049	\$2,001,756	\$18,594,566	\$1,397,675	\$569,301,046
Other	33,069,846	68,891	15,918	30,670	33,185,285
TOTAL	\$580,376,895	\$2,070,647	\$18,610,484	\$1,428,345	\$602,486,331

REVENUES - Fiscal Year 1991

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Naval Oil Shale Reserve No. 3	Total
Crude oil	\$459,198,105	\$1,419,348	\$19,324,074	\$ 35,115	\$479,976,642
Natural gas	69,670,222	777,910	---	2,150,227	72,598,359
Propane	21,716,102	30,356	207,014	---	21,953,472
Mixed butane	15,610,643	6,478	865,764	---	16,482,885
Isobutane	1,588,063	---	---	---	1,588,063
Gasoline	26,349,756	88,397	---	---	26,438,153
Carbon dioxide	---	---	---	---	0
Subtotal	\$594,132,891	\$2,322,489	\$20,396,852	\$2,185,342	\$619,037,574
Other	35,127,430	16,860	0	0	35,144,290
TOTAL	\$629,260,321	\$2,339,349	\$20,396,852	\$2,185,342	\$654,181,864

REVENUES - Fiscal Year 1992

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Naval Oil Shale Reserve No. 3	Total
Crude oil	\$326,616,795	\$1,079,460	\$17,364,144	\$ 40,595	\$345,100,994
Natural gas	35,203,883	664,600	---	1,206,766	37,075,249
Propane	17,678,715	13,702	173,063	---	17,865,480
Mixed butane	9,887,300	5,246	729,414	---	10,621,960
Isobutane	3,280,460	---	---	---	3,280,460
Gasoline	21,211,609	63,569	---	---	21,275,178
Subtotal	\$413,878,762	\$1,826,577	\$18,266,621	\$1,247,361	\$435,219,321
Other	37,335,395	245,392	304	---	37,581,091
TOTAL	\$451,214,157	\$2,071,969	\$18,266,925	\$1,247,361	\$472,800,412

REVENUES - Fiscal Year 1993

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Naval Oil Shale Reserve No. 3	Total
Crude oil	\$302,257,380	\$1,829,639	\$13,473,077	\$ 34,317	\$317,594,413
Natural gas	33,504,911	626,068	---	3,501,835	37,632,814
Propane	16,860,322	19,898	184,128	---	17,064,348
Mixed butane	7,916,849	7,739	565,955	---	8,490,543
Isobutane	4,030,141	---	---	---	4,030,141
Gasoline	17,514,249	53,588	---	---	17,567,837
Subtotal	\$382,083,852	\$2,536,932	\$14,223,160	\$3,536,152	\$402,380,096
Other	37,258,356	78,843	4,262	0	37,341,461
TOTAL	\$419,342,208	\$2,615,775	\$14,227,422	\$3,536,152	\$439,721,557

REVENUES - Fiscal Year 1994

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Naval Oil Shale Reserve No. 3	Total
Crude oil	\$268,792,097	\$1,164,562	\$9,497,590	\$ 26,495	\$279,480,744
Natural gas	39,922,595	507,779	---	2,925,707	43,356,081
Propane	16,217,201	12,143	196,916	---	16,426,260
Mixed butane	6,667,878	8,666	484,626	---	7,161,170
Isobutane	3,402,748	---	---	---	3,402,748
Gasoline	11,716,920	38,352	---	---	11,755,272
Carbon dioxide	--	--	--	--	0
Subtotal	\$346,719,439	\$1,731,502	\$10,179,132	\$2,952,202	\$361,582,275
Other	43,424,091	(97,653)	2,862	0	43,329,300
TOTAL	\$390,143,530	\$1,633,849	\$10,181,994	\$2,952,202	\$404,911,575

REVENUES - Fiscal Year 1995

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Naval Oil Shale Reserve No. 3	Total
Crude oil	\$294,897,830	\$1,198,158	\$11,541,610	\$ 40,150	\$307,677,748
Natural gas	32,520,430	505,449	---	2,496,517	35,522,396
Propane	16,085,065	7,329	146,531	---	16,238,925
Mixed butane	6,683,002	4,326	523,082	---	7,210,410
Isobutane	3,922,507	---	---	---	3,922,507
Gasoline	10,149,302	39,366	---	---	10,188,668
Carbon dioxide	--	--	--	--	0
Subtotal	\$364,258,136	\$1,754,628	\$12,211,223	\$2,536,667	\$380,760,654
Other	36,765,753	(39,276)	2,590	0	36,729,067
TOTAL	\$401,023,889	\$1,715,352	\$12,213,813	\$2,536,667	\$417,489,721

REVENUES - Fiscal Year 1996

Product	Naval Petroleum Reserve No. 1	Naval Petroleum Reserve No. 2	Naval Petroleum Reserve No. 3	Naval Oil Shale Reserve No. 3	Total
Crude oil	\$306,430,376	\$1,048,195	\$11,559,955	\$ 79,537	\$319,118,063
Natural gas	37,030,203	329,222	---	3,064,315	40,423,740
Propane	18,292,392	6,838	187,780	---	18,487,010
Mixed butane	9,873,937	2,965	697,393	---	10,574,295
Isobutane	4,358,287	---	---	---	4,358,287
Gasoline	18,508,446	29,105	---	---	18,537,551
Carbon dioxide	---	---	---	---	---
Subtotal	\$394,493,641	\$1,416,325	\$12,445,128	\$3,143,852	\$411,498,946
Other	30,919,590	(32,732)	1,740	2,200	30,890,798
TOTAL	\$425,413,231	\$1,383,593	\$12,446,868	\$3,146,052	\$442,389,744

Naval Petroleum Reserve No. 1 Development and Exploratory Program — Wells Drilled

	1974 Through Fiscal Year 77		Fiscal Year 77		Fiscal Year 78		Fiscal Year 79		Fiscal Year 80		Fiscal Year 81		Fiscal Year 82		Fiscal Year 83		Fiscal Year 84		Fiscal Year 85		Fiscal Year 86		Fiscal Year 87	
	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.
Tulare	0	2	0	0	0	0	2	0	2	0	4	0	8	0	0	0	4	0	4	0	0	0	1	0
Dry Gas	12	3	5	0	6	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shallow	163	3	99	0	65	0	34	0	16	0	0	0	31	0	25	0	10	0	8	0	12	0	4	0
Olig	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Stevens	81	5	63	1	47	1	43	0	46	1	42	3	61	5	62	2	15	3	10	0	10	0	24	0
Carneros	2	1	1	0	2	0	0	3	0	0	0	0	0	1	0	1	1	0	0	1	0	0	0	1
Basement	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1 ¹	0	0	0	0	0
TOTAL	258	14	168	1	120	3	82	3	64	1	46	3	101	6	87	3	30	3	22	2	22	0	29	1

	Fiscal Year 88		Fiscal Year 89		Fiscal Year 90		Fiscal Year 91		Fiscal Year 92		Fiscal Year 93		Fiscal Year 94		Fiscal Year 95		Fiscal Year 96		Total		Grand Total
	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	
Tulare	0	0	0	0	6	0	1	0	1	0	0	0	1	0	3	0	0	0	37	2	39
Dry Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	26	8	34
Shallow	9	0	7	0	0	0	4	0	10	0	7	0	16	0	13	0	8	0	541	3	544
Olig	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Stevens	28	0	13	0	12	0	9	0	14	0	15	0	20	0	14	0	16	1	645	22	667
Carneros	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	9	15
Basement	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	4
TOTAL	37	0	20	0	18	0	14	0	25	0	22	1	37	0	30	0	24	7	1,256	48	1,304

¹ Initiated in fiscal year 1985.

Naval Petroleum Reserve No. 3 Development and Exploratory Program — Wells Drilled

	1974 Thru Fiscal Year 76		Fiscal Year 77		Fiscal Year 78		Fiscal Year 79		Fiscal Year 80		Fiscal Year 81		Fiscal Year 82		Fiscal Year 83		Fiscal Year 84		Fiscal Year 85		Fiscal Year 86		Fiscal Year 87	
	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.
Shannon	0	0	78	0	105	0	41	0	4	0	0	0	0	0	0	0	9	0	6	0	18	0	15	0
Wall Creek	0	1	76	0	23	0	0	0	12	0	20	0	9	0	3	0	7	0	9	0	17	0	7	0
Shale ¹	0	0	1	0	15	0	20	0	10	0	0	0	8	0	5	20	10	7	10	0	26	0	18	16
Tensleep	0	1	0	0	0	3	0	1	0	0	2	0	1	0	1	0	0	0	1	0	1	0	1	0
MDL ²	0	2	0	0	0	7	0	6	1	1	0	0	1	0	8	0	8	0	6	0	1	0	0	0
Subtotal	0	4	155	0	143	10	61	7	27	1	22	0	19	0	17	20	34	7	32	0	63	0	41	16
Shannon EOR ³	0	0	0	0	0	0	0	0	29	0	0	0	5	0	0	0	6	0	26	0	0	0	7	0
TOTAL	0	4	155	0	143	10	61	7	56	1	22	0	24	0	17	20	40	7	58	0	63	0	48	16

	Fiscal Year 88		Fiscal Year 89		Fiscal Year 90		Fiscal Year 91		Fiscal Year 92		Fiscal Year 93		Fiscal Year 94		Fiscal Year 95		Fiscal Year 96		Total		Grand Total ⁴
	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	Dev.	Exp.	
Shannon	8	0	4	0	0	0	1	0	6	0	24	0	10	0	16	0	0	0	345	0	345
Wall Creek	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	188	2	190
Shale ¹	2	19	6	5	0	0	0	0	13	0	0	0	8	0	28	0	10	0	190	67	257
Tensleep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	5	0	14	5	19
MDL ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	16	41
Subtotal	15	20	10	5	0	0	1	0	19	0	24	0	18	0	46	0	15	0	762	90	852
Shannon EOR ³	32	0	12	0	40	0	20	0	30	0	20	0	0	0	7	0	11	0	245	0	245
TOTAL	47	20	22	5	40	0	21	0	49	0	44	0	18	0	53	0	26	0	1,007	90	1,097

¹ Includes 27 Shallow Steele Shale Wells not previously accounted for that were drilled in fiscal year 1983 and 1984 and were plugged and abandoned.

² Muddy/Dakota/Lakota and other (Morrison, Madison, Crow Mountain, potable, wells and X unknown)

³ Enhanced oil recovery

⁴ Does not reflect the current number of active wells in each formation. Subsequent recompletion to other formations during the period fiscal year 1974 through fiscal year 1992 are not listed in this table.